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THE SCIENCE OF LIFE: ITS STUDY AND RELATIONS, PARTICULARLY WITH THEOLOGY.

BY

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[*Continued from page* 703.]

I HAVE stated, that if it be true, as generally believed, that the present generation of men has made progress far beyond that which any former age could show, either as regards the investigation of the laws of Nature or the extension and regulation of the powers of man, we must admit the truth and importance of the observation of Humboldt, that the reconciliation of science with religion is the greatest want of the present age; and I added that it is to the medical men and to the improving medical education of the present day, that this reflection is peculiarly applicable, both because the medical profession has its foundation, more extensively than any other, in natural science; and also, because the science which is usually regarded as more distinctly than any other the foundation of Natural Theology—the science of life in all its varieties—is likewise that on which medicine has its main foundation. It has indeed become obvious, in the progress of inquiry, that the science of final causes, or of natural theology, is most properly studied, separately indeed, because leading to a separate inference, but in connection with every branch of natural science, and as regards all those which appertain to the different classes of living beings, because strengthening that inference by a short and simple process of reasoning, peculiarly applicable to each, and ultimately promising to subject all to that Intelligence and that Power, to which, and which alone, we are all anxious, as we are all bound, to submit in humiliation and reverence.

But the more we are satisfied of the importance and even preeminence of our subject, the more we may be assured of the facility of misleading ourselves and our successors in these lines of inquiry and of reflection, if we deviate at all, in the present early period of the application of modern science to theology, from accuracy and precision in the objects we propose to ourselves, or the language we use. It is surely of much importance that any such questions, if truly set on the right foundation at this period of the progress of science, should not be again unsettled, even in the apprehension of a few, by such misapprehension.

It seems to me that there is more obscurity and even fallacy than necessarily belong to the subject, in the well known treatise of Mr. Grove, on the *Correlation of Physical Forces*, the general result of which he has thus stated:—"This course of reasoning appears to me to lead inevitably to the conclusion, that heat, light, electricity, magnetism, chemical affinity, are all modes of motion; or, are only matter moved, or molecularly agitated, in certain definite directions." He says farther:—"As by the artificial structure of a voltaic battery, chemical actions may be made to cooperate in a definite direction; so, by the organisation of a vegetable or animal, the mode of motion which constitutes heat or light may, without extravagance, be conceived to be appropriated, and changed into the forces which induce the absorption and assimilation of nutriment, and into nervous agency and muscular power. Indications of similar thoughts," he observes, "may be detected in the writings of Liebig."* (p. 192.) He says farther that:—"When we say that we feel hot, or feel cold, our expressions are intelligible to beings capable of experiencing similar sensations; but the physical changes accompanying these sensations are not thus explained." (*Ibid.*, p. 194.) He might have added, nor is the fact explained, which in any such case is only generalised to a limited extent, that, as far as our observations go, particular physical changes and particular doubtful sensations accompany one another.

With this qualification, I should be willing to waive any objection to this mode of expressing what is known, or can be known, of the union either of life with organisation, or of soul with body; but I consider it of great importance to point out, even to those who are only beginning the study of these sciences, what is the true extent of this qualification. When we attend to the essential peculiarities, already generalised, of all the most general of the phenomena of life, organic or animal, we must add to this idea of *molecular motion*, under certain conditions and at least in certain definite directions, that of *rest* under certain forms, equally characteristic of the objects of our inquiry, and wholly unexplained—those of variety, as far as we can judge, infinite, although the chemical elements necessarily employed in constructing all organised bodies are few, and although the types or models on which they are formed are so related to each other as truly to indicate unity of mental design; those of change, both chemical and mechanical, truly incessant, minute, and essential, from the first development of each vegetable living germ, to the last formation of cells in the animal excretions, yet never presenting, in the living structures, any of those crystalline forms to which the same elements under the same circumstances, with the exception of the presence of vitality, are liable. We must remember, also, that this *tourbillon vital* has been superadded, within a time comparatively recent, on a world already subjected to a system of regular physical laws, by which motions and even molecular movements in great variety are produced. We must keep in view the facts, equally important and ascertained by science, as to the sensations, appetites, and instincts of all animals, and the recollection and intelligence, the information and ingenuity, the emotions and desires, *e.g.*, the principle of ambition or desire of power, the love of approbation, or desire of esteem, the principle of imitation, the sense of beauty and sublimity of truth, justice, piety, sense of duty and of shame, of moral obligation, even the sense of wit and humour, in the human mind—equally essential to many objects which we clearly perceive, but as to which, as Guizot expressed it, our minds, although intelligent and free, are felt to be the agents of a Power which must have existed long, and regulated much, before they existed. We must perceive that the determination of the nature of any changes, physical or chemical, which can be made known to us by our senses, as supervening, with a view to these objects, on the existence of matter in the primeval world, is going but very little way in the investigation of the phenomena, the laws, or the results, of either organic or animal

* This word Force is now so generally used in this country, particularly by those whose ideas on these subjects are chiefly taken from the Germans, that it is probably to no purpose to object to it; but it still seems to me, as I formerly stated, certain that this word very generally involves a hypothesis, which is very doubtful, and has accordingly deceived various observers, both in physical and physiological inquiries; viz., the hypothesis that any change referred to this head must be essentially a motion; and even, that it must be a motion resulting from an impulse, or from an effort, which is thus indicated, and may be thus measured. The use of the more general word Power involves no such hypothesis, and is therefore, as I believe, decidedly more philosophical, particularly when the inquiry is merely physical, and avowedly goes no further than to ascertain the relation which one object, or one event, bears to another, or the law according to which one may be expected to attend or follow another.

life, as these have been already investigated, and, arranged on the same principle, and with a similar view to practical application, as the objects of the other natural sciences; and that it necessarily involves a risk of allowing premature, or verbal generalisation, to occupy our minds during the period of life which nature has allotted for education and the acquisition of principles.

In fact, if we wish to carry these inquiries farther, according to the strict rules of science, it is more philosophical to set aside all abstract questions of these kinds, as Dr. Prout did, by the reflection that the main object of philosophy, as regards the vital principle, is to ascertain, not *what it is* (for which we have always a sufficient provision in the belief of a Creator, the only true efficient cause), but *what it does*; or, as Dr. Whewell did, by the reflection, that "life consists in a permanent influence over a perpetually changing set of particles"; and that "the vital force not only circulates the particles of matter, but puts them on a stream, of which the flow is development as well as movement." (*Philos. of the Inductive Sciences*, vol. ii, pp. 43, 51.) Thus falling back on the well-considered maxim of Clarke, of Newton and of Reid, that what men call the course of nature is simply the will of God, regulating things in the material world by fixed general laws which thus emerge, at the right time and place, from all scientific examinations of nature, and, while they effectually bind together all the physical sciences and the final causes which connect themselves with them, keep the provinces of matter and mind uniformly and religiously separate.

Even if we knew precisely what is the part of the cerebro-spinal axis, in which the changes essential to every act of sensation, of recollection, and of instinct in a voluntary effort, of which we are conscious, take place, and what is the precise nature of the molecular motion, or change, essential to any mental act producing its specific effect on the voluntary muscles, the involuntary motions, or the chemical phenomena of the body, we should still be as far as ever from any explanation of phenomena which belong to a different class of existences, and are made known to us by a different kind of evidence, dealing with the physical conditions of life.

The following verses by Arbuthnot, the friend of Pope, were long quoted by Stewart, and after him by Brown, in their University Lectures, and were also quoted by Lord Jeffery in his Review of Priestley; but they place the essential nature of the distinction between physical and mental science in so clear a light, and it is of such consequence that their distinction should habitually present itself to medical men in its clearest form, that I think it worth while to quote them again here, with a part of the Commentary on Brown by the last author, whose scientific writings, being so "few and far between", are probably less generally known.

> "Am I but what I seem, mere flesh and blood?
> A branching channel, and a mazy flood?
> The purple stream, that thro' my vessels glides,
> Dull and unconscious flows, like common tides.
> The pipes, thro' which the circling juices stray,
> Are not that thinking I, no more than they.
> This frame, compacted with transcendent skill,
> Of moving joints, obedient to my will,
> Nursed from the fruitful glebe, like yonder tree,
> Waxes and wastes: I call it *Mine*, not *Me*.
> New matter still the mouldering mass sustains;
> The mansion changed, the tenant still remains,
> And, from the fleeting stream repair'd by food,
> Distinct, as is the swimmer from the flood."

[See Review and Memoirs of Dr. Priestley, in *Edin. Review*, vol. ix, 1806. See also Dr. Abercrombie, in *Edin. Med. and Surg. Journal*, vol. xv, pp. 599, 604.]

"There may be", says Lord Jeffery, "little shakings in the brain, for anything we know; and there may even be shakings of a different kind accompanying every act of thought or perception; but that the shakings themselves are the thought or perception, we are so far from admitting, that we find it absolutely impossible to comprehend what is meant by the assertion. The shakings are certain throbbings, vibrations, or stirrings, in a whitish half-fluid substance, like custard, which we might see, perhaps, or feel, if we had eyes and fingers sufficiently small or fine for the office. But what should we see or feel, on the supposition that we could detect, by our senses, everything that actually took place in the brain? We should see the particles of this substance change their places a little, move a little up or down, to the right or left, round about or zig-zag, or in some other course or direction. This is all that we should see, if Dr. Hartley's conjecture were proved by actual observation; because this is all that exists in motion according to our conception of it, and all that we mean when we say that that there is motion in any substance. Is it intelligible, then, to say that this motion, the whole of which we see and comprehend, is thought or feeling, and that thought and feeling will exist whenever we can excite a similar motion in a similar substance? In our humble apprehension, the proposition is not so much false, as utterly unmeaning and incomprehensible. That sensation may follow motion in the brain, or may be produced by it, is conceivable at least, and may be affirmed with perfect precision and consistency; but that the motion is itself sensation, and that the proper and complete definition of thought and feeling is, that they are certain vibrations in the brain, is a doctrine, we think, that can only be wondered at, and must be comprehended before it can be answered.

"No advocate for the existence of mind ever thought it necessary to deny, that there was a certain bodily apparatus necessary to thought and sensation in man, and that on many occasions the sensation was preceded or introduced by certain impulses and corresponding movements of this material machinery; we cannot see without eyes or light, or think without living bodies. All that they maintain is, that these impulses and movements are not feelings or thoughts, but merely the occasion of feelings and thoughts; and that it is impossible for them to confound the material motions which precede those sensations with the sensations themselves, which have no conceivable affinity with matter.

"Without recurring to the reasoning of the Berkeleians, it seems quite enough to determine us to reject it, that it confounds the act of perception with the qualities perceived, and classes among the objects of perception the faculty by which these objects are introduced to our knowledge, and which must be exercised before we can attain to any conception either of matter or its qualities." (Review and Memoirs of Dr. Priestley in *Edinburgh Review*, vol. ix, p. 157.)

I rejoice to see that the nature and the importance of the distinction here drawn, and I believe generally approved, at least during the last fifty years, in the universities of Scotland, is more clearly perceived and correctly appreciated in a work which is very recently published, but destined, I hope, to a long continuance of popular favour—*The World of Mind*, by Isaac Taylor—than in any other writings that have attained to a high reputation in England. "The two sciences, the physiological* and the mental, do indeed run parallel throughout almost their entire course, and often intersect each other, and seem to be so intimately blended, that to distinguish the one from the other seems sometimes barely possible. Nevertheless, as we shall see, *they are two sciences, not one;* and the facts belonging to each are susceptible of distinct treatment. A clear perception of this important difference presents itself as one of the most important of those ends which should be aimed at in an elementary book on intellectual philosophy. It is not only confusion of thought, but a crowd of positive errors, that springs from inattention to this distinction." (p. 4.)

As an example, he mentions farther, conjectures founded on analogies which abound in the material world, that there are in it orders of beings as much superior to man as he is superior to others. It is not the office of science to step forward and contradict any surmises of this sort. In fact, science must violate its own rules, and become conjectural, before it could make any such attempt. Science has to do only with facts, and those inferences from facts which can be derived from them on warrantable principles of reasoning. (*Ib.*, p. 5.)

The statement of the immateriality of the mind, then, we regard as merely the precise expression or limitation of the vast range of phenomena known to us by consciousness, as acts of mind—*subjective*, not *objective* phenomena, which, when traced to their origin, cannot be made direct objects of any of the senses. It has been said that, notwithstanding all the reasoning that has been employed on the subject, physiology does not enable us to form a conception of a human mind not possessed by a living brain. I answer, that no science enables us, as the last result of an induction, to *conceive* how any phenomenon in Nature takes place, otherwise than by referring it to the will of Heaven. The business of science, in every case, is simply to observe exactly the phenomena, and ascertain the laws and conditions under which they take place. How they are brought about, when all these conditions are fulfilled, is in every case beyond our conception. What kind of conception, accordingly, does physiology enable us to form of the human mind, as connected with the human brain? As physiologists, we see indeed distinctly that the particular condition of the brain with which, in this state of our existence, the human mind is connected, must perish when the brain itself perishes; likewise when a particular (and very limited) increase or diminution of pres-

* That is, so far as it depends on the evidence of the senses.

sure on it, or a particular (very limited) rise or fall of its temperature, takes place, or when various substances, acting on it as poisons, are brought to it with the blood. But the act of our Creator which connected a human mind, or the mind (*i. e.*, the mental acts or affections) of any animal with any peculiar condition of a brain, was always to us an act of power altogether inconceivable. The attribute of incomprehensibility attaches itself to what we know to be the fact—the connexion of any material organ, or any condition of such an organ, with any act of mind. For anything I can conceive to the contrary, the Author of our nature might just as easily have connected the mind of man with the entire state of the table at which I write, as with the entire state of a living brain.

It is this manifest inadequacy of *any* physical cause that can be assigned to "shoot the gulf which separates the sensible world from the sentient soul", which compels us to regard the correlation of forces, in reference to animal life, as capable of affording only a very partial and hypothetical, if it be not merely a verbal, explanation. And, although the expressions used are different, yet, if anything is really believed to be gained by that expression, we might apply to it the language of the ancient philosophers whose thoughts rested on the subject most frequently and most correctly. A sentence of Cicero, referring to Plato on the subject, may be quoted as a text on which all that I have there quoted may be said to be a commentary.

"Audiamus Platonem" (says Cicero) "quasi quendam Deum philosophorum; cui duo placet esse motus, unum suum, alterum externum; esse autem divinius quod ipsum et suâ sponte moveatur, quàm quod pulsu agitetur alieno. Hunc autem motum in solis animis esse ponit, ab hisque principium motûs* esse ductum putat. Quapropter, quoniam ex mundi ardore motus omnis oritur, is autem ardor non alieno impulsu, sed suâ sponte movetur, animus sit necesse est. Bestiis autem sensum et motum dedit, et cum quodam appetitu accessum ad res salutares, a pestiferis recessum; hoc homini amplius quod addidit rationem, quâ reguntur animi appetitus, qui tum remittuntur, tum continentur." (*De Naturâ Deorum*, Lib. ii, 12.)

But, in stating the connexion of the first principles of science with religion, I think it necessary to reflect a little on some other recent publications in this country, which are in some degree at variance (I think unfortunately) with those authorities which we have been accustomed especially to revere. I allude particularly to the recent writings of Mr. Baden Powell of Oxford, of Principal Tulloch, and of Drs. McCosh and Dickie, all of whom seem to have been strongly impressed with the fear that the result of the very zealous and extensive inquiries into all departments of natural history, particularly into those departments of it which indicate uniformity of construction as one of the most striking characteristics of the works of Nature—*i. e.*, primitive forms admitting of modification according to the circumstances of each class, and so expanding or contracting as to constitute all forms—might be adverse to those which they deemed most important and most satisfactory in reference to the designs of the Author of Nature. They regard typical forms as more important in this view than special contrivances. They have therefore laboured zealously and earnestly to prove that "Order is Heaven's first law"; and that the object of Natural Theology is best attained by establishing this proposition in any case which can be regarded as an exception or an interruption to the ordinary course of Nature; although, in doing so, it be admitted that the usual argument for the existence and attributes of the Author of Nature, drawn from the adaptation of means to ends, is fallacious. In their speculations on this subject, all these authors seem to me to have lost sight of Mr. Powell's own certainly at least equally important observation, that "the evidences of Natural Theology can but receive increasing confirmation, in proportion as any physical theory may be substantiated which would give us a deeper insight into those secondary processes and laws by which the Divine will and plans are marked out, and which are to us as the manifestation of such designs." Again, he says: "It is of course obvious that, throughout these sciences, perpetual instances of such adaptation of structure to the ends and purposes of life are abundantly manifested; and it is no less evident that they *force themselves on the mind* with that *peculiar, immediate*, and *irresistible* kind of effect which is justly dwelt upon by most writers on the subject, and admitted by all inquirers in such *multitudes* of *convincing examples*." (*Spirit of Inductive Philosophy*, p. 69.). And again, exactly in accordance with what is above stated, he observes that "symmetry and beauty are the results of mind, of at least as high order as mechanical efficiency"; and that although, "throughout the immensely greater part of Nature, we can trace symmetry and arrangement, but not the end for which the adjustment was made, yet this is in no way a less powerful proof of design and intelligence than the former." (*Ibid.*, p. 135.)

And further, Mr. Powell says that instances arising from the contemplation of organised structures do not stand in any way particularly distinguished in their nature from other cases, and the like adaptation of means to an end in the wider arrangements of an organised matter. (*Ib., loc. cit.*) In this I have no doubt he is right; considering that it is the adaptation of means to an end, not the nature of that end, that in any kind of matter, and in the works of any agent, indicates design. *Inter alia*, if the design in view is the maintenance and gradual modification of a symmetrical and beautiful organised structure, it is the circumstance of various powers acting as means to an end to give it that preconceived form, not the circumstance of unity of composition in the form, that indicates design, or, as it is shortly and clearly expressed by Dr. Whewell, "our Morphology cannot injure our Teleology".

Mr. Powell states, as the conclusion of his argument regarding Final Causes, that its whole tenor is directed to show "that the inference and assertion of a Supreme Moral Cause, distinct from and above Nature, results immediately from the recognition of the eternal and universal maintenance of the order of physical causes, which are its essential external manifestations. Of the mode of action or operation by which the Supreme Moral Cause influences the universal order of physical causes, we confess our utter ignorance; but the evidence of such operation, where Nature exists, can never be lost or interrupted. And, in proportion as our more extended researches exhibit these indications more fully and more gloriously displayed, we cannot but believe that our contemplations are more nearly and truly approaching their Source." (*Essays*, etc., p. 168.)

This conclusion is so nearly in accordance with that drawn by Reid and Stewart from reflections on the same phenomena, and these are of so obvious and essential importance in our discussion, that we cannot but express both surprise and regret that this author should think himself entitled to set aside their argument altogether, particularly their reference to arbitrary influences as indicated by examination of Nature; and that he should say, in reference to "all the grander productions of Nature (among others) the incessant revolutions of vegetable and animal life, which no human laboratory can produce, we shall be still further from finding any analogy to the works of man, or, by consequence, any analogy to a personal individual artificer." (*Ib.*, p. 165.) This observation seems to me so manifestly inconsistent with the statements already quoted from the same author, that the error can only be explained by observing his not having attended to the distinction of end, of any contrivance, and use, or practical application.

But observe in what manner it is, in founding, as he says, on "more enlightened views, limiting the conclusions of Natural Theology," that he deduces his conclusion of the Supreme Moral Cause from the examination of Nature. He says that this inference results immediately from the recognition of the *order* of physical causes, which are its essential manifestations. Now Reid and Stewart, and all the others whom I have mentioned, speak of examination of the physical causes as leading to the very same inference. The only difference, therefore, is narrowed to this expression of their order, which he states as proving design. He says, "Order implies what by analogy we call intelligence. Subserviency to an observed end implies intelligence, foresight, which, by analogy, we call design." (*Ib.*, p. 164.) But, if he means by this that we cannot have intelligence implied without the manifestation of order, I think he is certainly mistaken, and may refer to the evidences already given as catastrophes, as shown by geology, and other indications of *arbitrary design* already fully stated, in proof that the adaptation of means to ends is often most distinct in cases where order, so far as we see, is broken—where changes of various kinds are effected, and what would otherwise be their fatal effects counteracted, as in the instances of metamorphoses and prospective contrivances, now found to be so general throughout Nature.

[*To be continued.*]

* *Principium motûs.* Here a distinctly arbitrary power, guided by instinct, but "quod suâ sponte movetur", is regarded (correctly, I believe) as the essential characteristic of animals.

ON THE MEANS OF RECOGNISING THE SUBJECTS OF INHERITED SYPHILIS IN ADULT LIFE.*

By JONATHAN HUTCHINSON, Esq., Surgeon to the Metropolitan Free Hospital.

ALTHOUGH the symptoms of inherited syphilis, as manifested during the first months of life, are well known, and although it is fully acknowledged that not a few infants so affected recover and grow up, yet but little attention appears to have been given to the recognition of such individuals in after life. Remembering the pertinacity with which a syphilitic taint clings to the constitution, we may easily admit it as probable that those so affected during the period in which development is most active should remain, if not through life, at least for many years, liable to diseases of a peculiar character, and requiring specific treatment. Granting this, and recollecting that the victims of inherited taint are in all classes of society far from infrequent, we arrive at a due estimate of the importance of their ready recognition. Although not by any means prepared to go the length suggested by Ricord, Erasmus Wilson, and others, in the question, "Is not all struma syphilis?" I am, I think, in a position to assert, and, by reference to clinical evidence, to prove, as far as such a proposition admits of proof, that a very considerable proportion of those chronic diseases of the eyes, skin, glands, and bones, to which the epithet "strumous" is commonly applied, are really the direct results of inherited syphilis. It is not, however, the intention of the present paper to discuss so wide a subject as the grounds of this creed, but to consider only a single question of much interest in connexion with it, namely, "On what evidence is a surgeon justified in concluding that a patient, it may be an adult, or at any rate, long past the period of infancy, suffers from an inherited venereal taint?" I hope to be able to show, that to a large extent we may in this matter be wholly independent of the histories given to us by parents. In many of these cases the history furnished to us is wilfully untrue, and in many others it is very desirable to avoid making any direct inquiries.

First among the peculiarities by which these patients may be identified, is the *tout ensemble* of the physiognomy. A bad pale earthy complexion, a thick and pitted skin, a sunk and flattened nose, and scars of old fissures about the angles of the mouth, often give the countenance so much of peculiarity that the condition may be recognised at a glance. The opinion is usually borne out by observing further, that the subject is of short stature, has a large protuberant forehead, and a heavy aspect. These peculiarities I have endeavoured to illustrate by the series of portraits now before the meeting. In all, the history of the case was carefully gone into, and the diagnosis satisfactorily established. As I shall not, however, owing to want of time, be able to produce any part of the evidence on this score, I must, in asking the meeting to accept the diagnosis, state that all the cases were taken in public, and the conclusion I arrived at corroborated by other observers. Most of the patients were under care at the London Ophthalmic Hospital, and the rest at the Metropolitan Free. Before proceeding to examine in detail the value and import of each of the several elements in the physiognomy under consideration, I may remark, that it resembles very closely that which many would consider as typical of struma. Often has it been replied to me by the sceptical, "Well, what you call the physiognomy of syphilis, I should have said was the very ideal of struma." It is, however, only the leucophlegmatic dark form of so-called "struma," which these cases simulate. With "fair struma," as marked by the transparent skin, clear teeth, long silky eyelashes, the syphilitic *facies* has nothing in common. Nor do I think that the variety of the strumous countenance denoted by a thick œdematous upper lip, patchy colouring of the cheeks, and a very sluggish circulation, is often found connected with syphilis.

Passing now to consider the character of the stamp impressed by inherited taint on certain organs and structures, for the most part visible, I shall have to mention *seriatim* the skin and its appendages, the teeth, the tonsils and palate, the eyes, the glands, the nose. And here let it be observed, that inherited disease does not mar the development of organs by any mysterious or latent influence, but by causing a positive and recognisable attack of inflammation at a period when those organs are in very early stages of growth. Thus, if the teeth are found dwarfed and notched, it is because the patient suffered from severe inflammation of the mouth with alveolar periostitis, at a time when the teeth existed as soft pulps only. If the skin look stretched and thin, and wanting in healthy softness, or if, on the other hand, it be thick, greasy, pale, and flabby—and the two conditions are often seen in opposite temperaments—the cause is that in very early life it was the seat of long-continued inflammation. So with the form of the nose. If its bridge be sunk and expanded, it is because, while the bones were soft, the child had severe snuffles, marking periostitis and chronic inflammation of the mucous membrane.

The *Skin* in these cases may show one of two states; it may either look thin and stretched, or it may look thick, coarse, and flabby. The first is the most diagonistic, requiring for its production a longer continued infantile eruption, but the latter is the more common. In both it is usual and almost constant to see numerous little pits on the forehead, cheeks, lips, etc., resembling those of small-pox, and well nigh invariably there are scars about the angles of the mouth. Very frequently small patches of diffuse psoriasis are noticed about the face, and the skin looks uncomfortably dry. The appendages of the skin are rarely in a healthy state; the nails are stumpy and broken, and show numerous white marks in their substance; the eyelashes are few and ill-developed, even if tinea tarsi do not exist; and the hair is thin and dry.

The liability of the skin to certain forms of eruptive disease (I am not speaking of infants, but of children or young adults) is also a valuable circumstance in aid of diagnosis. Whatever form may be originally assumed, if of syphilitic origin, it almost always tends to ulcerate, more or less. To a peculiar form of rapidly ulcerating lupus these patients are particularly prone. I have gone very carefully into the history of several hundred cases of lupus, with the view of determining whether they were of syphilitic origin; but my conclusion has been that, in a very large majority of the chronic forms of that disease, whether exedens or non-exedens, there is no reason to suspect hereditary taint. In those, however, in which the ulceration is rapidly destructive for a short time, and is then arrested, to be succeeded by a supple scar, and with but little tendency to relapse, I have rarely failed to establish a clear diagnosis of inherited disease. These are almost the only cases of lupus which ever came under treatment by rhinoplastic surgery; in the others the disease is rarely so completely arrested as to allow of any such measures. In two patients, whose portraits are now exhibited, the form of lupus to which I have adverted occurred. In one, it destroyed a considerable portion of one ear, and also part of the right ala of the nose; in the other, it eat out a portion of one ala of the nose, and was then arrested by specific treatment, and quickly healed.

The state of the *Teeth* constitutes one of the most valuable signs we possess, more especially that of the permanent set. Its value depends not only upon its constancy, but on the circumstance that it is impossible that these structures can have been altered in form, etc., by disease acquired in later life. I have had several cases in which, as the patient was between twenty and thirty years of age, it was very possible that the sunken nose, scars at the angles of the mouth, bad complexion, etc., might have resulted from acquired syphilis, but in which the strongly characterised state of the teeth wholly did away with such suspicion. The portrait which I now exhibit, shows tolerably well the state of notching of the incisors, their small size, etc., which are the most reliable characteristics. The casts before the meeting also illustrate these and other peculiarities. Respecting these casts, as well as the portraits, I may here remark that they have been taken only from cases in which a clear and conclusive history had been obtained. They show a remarkable similarity in the general type of the teeth. As a rule, the latter are small, rounded, or peg-shaped instead of flat, sometimes presenting a broad shallow notch in their edge, at others, so much worn down that this notch is not distinguishable. In the patient their colour, a dirty brownish hue, resembling that of bad size, is a very marked character. It is not to be removed by any amount of cleaning. They are very liable to early wearing

* The portraits (stereoscopic), casts of teeth, etc., which are repeatedly referred to in this paper, I shall have the greatest pleasure in showing to any one who may feel sufficient interest in the subject to give me a call. Their absence I shall endeavour to supply as far as verbal descriptions can effect the object, in a supplement of illustrative cases to follow the present paper.

down, the teeth of a person under twenty often being as much worn down as they ought to be at sixty. This circumstance, their bad colour, notched border, and small size, all point to an imperfect development of their outer layers and of the enamel especially. I have not as yet taken any opportunities for examining the structure of these teeth under the microscope, but intend doing so as soon as I can obtain good specimens. They do not appear to be particularly liable to caries. Irregularities of position, etc., are very common, but not, of course, in any way characteristic. I have seen many mouths in which the shape, colour, etc., marked them most positively as of the syphilitic type, in which they stood quite regular, and were all sound. The reason why the permanent teeth show more marked features of peculiarity than does the first set, is easily assigned. At the time when the infant suffered from stomatitis, the first set, although not cut, were already formed beyond the reach of damage, while the permanent ones, on the contrary, existed only as soft pulps. Now and then it happens that the attack of alveolar periostitis is unusually severe, so severe as to cause suppuration and the exfoliation of one or more of the crowns of the teeth. This occurrence is, I am convinced, very rare; Mr. Tomes, in his work on Dental Surgery, mentions but one example of it; and I have myself seen but two. It is to be observed that I am speaking not of the early decay or falling out of teeth which had been cut, but of their necrosis and exfoliation during the first week or two of life, long before they ought to have shown themselves. With the history of these two cases I need not detain the society: I have jotted down their principal facts on the cards on which the specimens are mounted.

Tonsils and Palate. I may simply remark respecting the latter, that if it show positive cicatrices, or have been extensively destroyed, the sign is a valuable one in confirmation of the diagnosis. It is, however, not among the more frequent. In young persons, the subjects of hereditary taint, the tonsils are almost invariably chronically enlarged; and, as the adolescent period approaches, they usually waste away and become atrophied. These states of disease are, however, so very common in others besides the subjects of syphilis, that we cannot attach any importance to them.

Eyes. Acute iritis, as a symptom of infantile syphilis, is very rare; but, on the other hand, it almost never occurs during the first year of life independently of such origin.* If, therefore, there be found in the eyes of a young adult the remains of iritis, either in adhesions or obliteration of the pupil, the history given of which is that they were left by inflammation in infancy, the presumption is considerable that the child then suffered from syphilis. As the subject of inherited syphilis advances from childhood to early adult age, he becomes, however, liable to other much more common forms of inflammation of the eye. These are of the utmost value in establishing a diagnosis. The disease hitherto known as "strumous corneitis", and consisting in the interstitial deposit of lymph in the substance of the cornea, is, I am certain, in a very large majority of instances, of direct syphilitic origin. As I cannot, of course, extend this paper so far as to adduce the lengthy evidence upon which I make this assertion, I may state that it will shortly be published in detail in the *Ophthalmic Hospital Reports*, and also that the investigations respecting it have been conducted at the Moorfields Ophthalmic Hospital, under the observation, amongst others, of Mr. Critchett and Mr. Bowman, both of whom have been quite convinced of the accuracy of the conclusion, and now constantly adopt a specific treatment for this class of cases. It will be noticed in most of the portraits now shown that the corneæ are more or less opaque, and also that the brows are more or less contracted, as if the patient had long suffered from intolerance of light. A form of inflammation of the choroid, attended with the deposit of lymph beneath the retina, is not uncommon in the subjects of inherited syphilis. These deposits may be seen with the utmost distinctness by the aid of the ophthalmoscope, and when absorbed leave circular or irregular patches in which the pigment is deficient, and the retina opaque, which are equally easily found. These deposits cause more or less damage to vision, according to the part of the retina which is disorganised. Not unfrequently this form of choroiditis occurs in conjunction with corneitis, which latter prevents the ophthalmoscopic examination of the eye.

Respecting the other signs of this diathesis I must be very brief. The head is rarely well formed, the forehead being often more or less protuberant from the effect of slight chronic hydrocephalus in infancy. One of the portraits shows this state in a more advanced degree. There are often nodes on the bones, either those of the skull or of the extremities, and these often suppurate and cause exfoliation of small portions of bone. Chronic diseases of joints of the class usually called strumous are not infrequent. Enlargements of the lymphatic glands under the jaw are also now and then seen. When this occurs, I may own that I generally find exceeding difficulty in persuading any one else into the belief that the disease can possibly be anything else than "struma," that meaningless term appearing to have linked itself almost indissolubly to these affections. The flattening of the bridge of the nose has been already adverted to. It is a very marked condition in most cases, and constitutes a very valuable sign. A thickened and hypertrophied state of the structures under the tongue, including the ducts, mucous membrane, and connective tissue, is often seen, but is, I suspect, quite as much connected with the remedies which have been administered as with the disease. This observation may naturally lead to a few words respecting the probability of many of the symptoms which I have described having been in reality rather the effects of mercury than of syphilis. In a majority, the mother of the patient stated, that the medical man who had the treatment of the child in infancy had recognised the disease, and we may therefore presume, that in most, mercury had been employed. In several, however, no such diagnosis had been made, and it is probable no specific treatment had been adopted, indeed, I have one or two in which the mothers averred that their children had never taken any course of medicine. Now, as in these, the *rôle* of symptoms was equally well characterised, we may, I think, hold it as very probable that they were wholly attributable to the disease. Indeed, from the fact that these signs are all of them consequent upon the long existence of one or other of the phenomena of syphilis in very early life, it is plain, that a remedy which cuts short the duration of such phenomena, must tend to prevent rather than to exaggerate their effects. Now, there is no point in the whole range of the therapeutics of syphilis, I might almost say in therapeutics generally, upon which opinion is more unanimous, than, that the use of mercury rapidly and efficiently gets rid of the rash, snuffles, sore mouth, etc., which characterise that disease in infants.

In conclusion, I must beg to remark most emphatically, that it is not by any one symptom that the diagnosis of hereditary syphilis can ever be supported, but by the careful estimation of the entire group. They must be taken together in their relative bearings upon each other. By too great reliance on single ones, however apparently well marked, mistakes of the most egregious character would often occur, while I feel confident, that by the opposite course a very trustworthy conclusion may often be arrived at.

* See a paper on this subject by the writer in the July number of the "Ophthalmic Hospital Reports".

Illustrations of HOSPITAL PRACTICE:

METROPOLITAN AND PROVINCIAL.

ST. MARY'S HOSPITAL.

THREE CASES OF POISONING BY THE SEEDS OF THE DATURA STRAMONIUM.

Under the care of T. K. Chambers, M.D.

[*From Notes by* A. G. Lawrence, Esq., *House-Surgeon.*]

We have been favoured by Mr. Lawrence with the following detailed account of the cases of three boys who were poisoned by eating some of the seeds of the thorn apple which had been thrown aside on a heap of rubbish by the gardeners in Hyde Park. The children had been told that the seeds were used to make wine of, and therefore no doubt thought them a dainty, and partook greedily of them, but the precise quantity which they ate, and the time at which the symptoms followed the ingestion of the poison, could not be exactly ascertained. With reference to the latter point, however, it was judged to be about an hour before their admission. It will, no doubt, be interesting to our readers to have a precise account of the symptoms produced by a plant which is so common, and at the

same time so poisonous. A short notice of the symptoms and of the cases at that time on record will be found in Taylor's *Medical Jurisprudence* (p. 186, ed. 1849), who says, "all parts of the plant, but especially the seeds and fruit, are poisonous." The part which these children ate seems to have been the seeds and their septa.

Joseph Miller, aged 7, John Wilton, aged 8, and James Wilton, aged 7, were brought to St. Mary's Hospital, Wednesday, August 18th, 1858, at 5.40 P.M., with symptoms of poisoning by some narcotic irritant poison. The symptoms in each were similar, but with slight variations, caused, no doubt, by a larger amount of the poison being taken in the one than the other. The symptoms in each had better be described separately, and afterwards compared.

Case I. Joseph Miller, a well grown lad, aged 7, when brought in, was said to have been poisoned by drinking the water in the Serpentine which had lately been deodorised by lime, as he was found lying near it; nothing further could be gained in the history from the persons who brought them. When first seen, he was supposed to be much frightened and shamming, as he lay on the couch now and then uttering a sharp cry, especially when shaken; but the excessive excitement of the vascular and nervous system soon corrected this first impression. His skin was excessively hot and congested, especially the face and upper extremities. His step and gait were tottering and convulsive, and he had partially lost the use of his lower extremities. There was a good deal of convulsive twitching about both legs and arms, but more in the latter than the former. The eyes were open; pupils widely dilated and fixed, and insensible to the strongest light, but the patient was unconscious of everything going on around him, vision being quite lost. His speech was much confused and incoherent, and he was totally unconscious of what was said to him, shuddering and seeming much frightened. When left to himself, he groped about with his hands, and, touching objects, he immediately withdrew them; but when he felt himself falling, he endeavoured to catch at something so as to prevent it. A fluid being put in his mouth, he immediately spat it out. His limbs were very rigid, and remained so, except when the convulsive twitchings would come on, which was about every ten minutes at first. His breathing was easy, with now and then a deep sigh, twenty-six respirations in a minute. Pulse 110, strong and full; tongue dry and rather furred; there seemed to be an intolerable itching in the nose. There was no gastric irritation or attempt to vomit, and the secretions were all retained. An attempt to give him an emetic proved ineffectual, so the stomach-pump was introduced, and a large quantity of warm water injected with half a drachm of the sulphate of zinc. As this was retained for some time, vomiting was produced by tickling the fauces, and all the warm water brought up slightly discoloured with what appeared to be semidigested pieces of apple rind, plums, and other vegetable matter floating in it, but there was nothing which gave any clue to the poisonous matter he had taken. Some more warm water was pumped in, and repeated three or four times, and the patient then being wet was placed between blankets, and some brandy and beef-tea introduced into the stomach. Half an hour afterwards, he could not stand; the convulsive movements of the limbs increased, intermittent in character, induced at times by external impressions, such as touching the skin, but coming on also spontaneously. His pupils remained quite fixed; the stupor was increased.

8 P.M. Coma has gradually come on; he can hardly be roused except by galvanic shocks. Skin now cold; eyes shut; pupils still dilated; speech unintelligible. If left to himself for one minute, he falls into a deep sleep, from which he cannot be roused except by the battery. The convulsive movements now only come on when he is roused by the galvanic current. Mustard poultices are applied to the stomach and calves of the legs, and hot bottles to the feet.

9.30. The coma is still intense. Some spontaneous twitchings have come on occasionally during the last half-hour. He cries out when touched by the battery. Pulse is getting much weaker, 120. A relay of mustard poultices is ordered. The coffee and ammonia are continued.

12 o'clock. He has had galvanic shocks every seven minutes since half-past nine. He is now beginning to be conscious. The eyes are open; the pupils insensible to light. He can be roused now by smacking the face. The battery is discontinued.

1 A.M. He is now partially sensible, but much stupified. He can walk, but totters a good deal, and is totally unable to give any account of himself. He has passed urine involuntarily. The pupils are still dilated and fixed: sight is much impaired. He does not recognise his mother. The convulsive movements have quite ceased.

9 A.M. He has slept soundly since half-past one. He is still stupified, and recognises no one. The pupils are dilated and fixed. He has drunk a little beef-tea.

In the course of the day he became more sensible, though he still was unable to give any account of himself; but at times he had fits of stupor and drowsiness. The pupil remained fixed and dilated, and did not become of its natural size till the next day, when consciousness returned, and he gave a description of what he had eaten.

Case II. James Wilton, aged 7. In this case, the symptoms were not so urgent as in the former, and chiefly referred to excitement of the nervous system. He was very noisy when shaken, and sat up with his eyes open, with a fixed dilated pupil, quite insensible to a lighted candle. Vision was quite lost. The sense of hearing, however, appeared very acute, and the paroxysmal twitchings of the limbs every five minutes were very marked, and more so in the arms than the legs; but the limbs were not so rigid as in the other boy. The skin was burning, and the fauces dry; but he would not drink even when water was forced into his mouth. When placed on his legs, he would kick them forwards, but could not stand on them; and they did not remain quiet one minute. When spoken to, he appeared peevish and irritable, and answered by a sharp cry, or said sharply, "Let me alone"; all his words being curtailed in a curious way. He would sit up occasionally, but never shut his eyes, and would sometimes catch at imaginary objects; but if anything was put into his hands, he would immediately drop it. He had also great itching of the nose. Extreme watchfulness was a very prominent symptom. The pulse was full and irritable, 120. The secretions were retained. There was no vomiting. An emetic was administered (with great difficulty, owing to the patient's obstinacy), and, by tickling the fauces, vomiting was produced; but this gave no clue to the nature of the poison. Strong coffee and brandy was also given; and, about 9 P.M., the convulsive twitchings became less frequent, occurring about every ten minutes. Touching the skin, however, would bring them on immediately. There was no tendency to coma, but, on the contrary, extreme restlessness. The speech was still unintelligible. The pupils remained fixed.

1 A.M. He had become a little more conscious, and answered questions more to the point. The pupils remained fixed; he was still restless, and remained in much the same state all night, not becoming quite conscious until 9 A.M., when he spoke to his mother, and slept the greater part of the day afterwards, waking up occasionally, and having intermissions of unconsciousness; but the pupils remained widely dilated during the whole day.

Case III. John Wilton, aged 8. This boy had eaten less than either of the others, and consequently the symptoms were less urgent. He walked to the Hospital, and then, being frightened, ran home; but, as soon as he arrived there, he became very uneasy, and his mother brought him back. On admission, he was semiconscious. The dilatation of the pupil was marked. The convulsive twitchings were absent, but he had a great desire to lie down and sleep. When roused, he seemed bewildered, and would not give any account of himself. He could stand, when placed on his legs; but groped about, and caught at imaginary objects, as patients are observed to do in cases of poisoning by belladonna. The eyes were open, but he took no notice of anything or anybody about him; and when objects were held before his eyes, he could not see them. His hearing was acute, and his eyes followed the direction of the sound. The secretions were all retained. The same treatment was pursued as in the other cases. He was kept awake by constant rousing and by strong coffee; and, about twelve o'clock, he became more conscious, but had intermissions of bewilderment, which lasted till 10 A.M., when he recovered consciousness completely; and gave an accurate description of the seeds of the plant which they had eaten, and where they were to be found. One of the hospital porters was sent with him to the place, and he pointed out and recognised several of the fruit of the datura stramonium, which the gardeners had thrown away among some rubbish.

Remarks. I have detailed these cases at some length, owing to the rarity of the poison, and the opportunity which was afforded of comparing the cases. The symptoms in all were very similar, differing only in degree. In all, the gait was tottering and undecided, and the skin (especially of the face and upper extremities) hot and congested. The delirium was

noisy in each; but in the first case, while the maniacal frenzy was marked in the early part of the evening, deep coma afterwards overcame it; while in the younger lad (Case II) extreme excitability, peevishness, and fright prevailed; and he even sat up the whole time, with his eyes wide open, although vision was quite lost. The pulse in all was very high and full, about 120 in a minute. The speech in all was confused, and the mind wandering, so that they seemed unconscious of what was said to them. The eyes in all were open, with widely dilated pupils, insensible to a strong light, and in all the cases with complete loss of vision. In all there seemed to be great itching of the nose. In a space of time varying from a quarter of an hour to an hour, they each became unable to stand, and convulsive movements of the limbs came on, intermittent in character, and occurring at variable intervals, induced principally by external impressions, and affecting the upper more than the lower extremities. This was best seen in the second case. The speech then became muttering, unintelligible, and even lost. The pupils, skin, and pulse, remained the same. After an emetic, they continued for a time in the same excitable state, passing, however, in each case, into a state of stupor, and even coma. This, however, came on at different periods, and differed in degree. In the first case, it came on gradually, about an hour and a half after admission; and here the coma was much more marked than in the other cases, requiring the galvanic battery to rouse him from it—a condition which continued for four hours, and was not associated with so much convulsive action as in the other cases. In case II, the stupor was not so great as in Case I; but the convulsions were more marked than in either of the others, and persisted for five hours. In Case III, the stupor was marked, but was not so profound as in the other cases, and the convulsive movements lasted for a shorter time. They all seemed to become partially conscious at about 1 A.M.; and, in the first case, the boy became more sensible, and was able to walk a little, tottering, however, a good deal (*but was unable to give any account of himself*), and was then allowed to go to sleep; but the other two remained sitting up, very noisy and restless, during the whole night, and did not sleep till a late hour in the day. Even then the pupils remained dilated and fixed, and they had intermissions of stupor. The itching of the nose also continued during the greater part of the day.

The treatment adopted was that indicated by the symptoms. The result shows that it was successful.

Original Communications.

DYSPEPSIA, IN SYMPATHY WITH AN OVER-WROUGHT BRAIN.

By John Watson, M.D., Southampton.

The influence of the mind upon the nervous system, with which it is so intimately and mysteriously connected, and through that system upon the functions of the body in general, is a fact which a little experience in the practice of our profession suffices to force on our attention. Suppressed feeling, sudden anxiety, surprise, joy, bring on sudden forms of disorder, or death itself; the depressing and even fatal weight upon the spirits of a dream or presentiment, when believed in as a supernatural visitation, has either been personally witnessed by us, or comes supported by testimony of the highest kind; while the ability of the weakest frame, under the stimulus of a strong necessity, to undergo incredible exertion and privation,—or, under the supporting influence of a buoyant, hopeful disposition, to rally under the attacks of an exhausting disease,—is perfectly intelligible and well known. Most practical men will understand the remark and endorse it, that under any severe form of illness, one of the most serious symptoms they have to combat, is a want of cheerful confidence in the result on the patient's own part. However variously we may attempt to explain it, the fact is unquestionable. Excessive mental exercise, again, has a marked effect on the ordinary functions of the body, by withdrawing, as has been supposed, a disproportionate amount of nervous influence to the brain; or possibly, a better explanation may be, by intensifying the sympathies of the other animal functions with this organ from its increased activity. Be this as it may, I am persuaded I have often witnessed a form of this kind of disorder, not only in what are called nervous affections, as hysteria, mimosa inquieta, the neuralgiæ, etc., but in chronic affections of the liver and stomach. I am persuaded that an over-wrought brain is the predisposing cause of many of those multifarious forms of indigestion that beset the industrious population of our large towns; and that this cause is often lost sight of in the consideration of the more evident exciting causes, such as the quality and quantity of the ingesta, etc. I could enumerate many such instances occurring among the intelligent artizans of the busy town I have recently left (Birmingham); but I confine myself to the following, which, I had full opportunity of ascertaining, was not a *post hoc* result merely, but one strictly *propter hoc*.

Case. Mr. W. J., now a middle-aged man, of nervous-bilious temperament, engaged in a light business, but with considerable continuous head-work, and having literary and scientific tastes, was at times under my care for several years. His attacks were marked by pain in the forehead, temples, or eyeballs, often only called forth and always aggravated by a sharp movement of the head, and attended with muscæ volitantes, partial amaurosis, alarming vertigo, neuralgia of the heart, or irregularity in the action of this organ. The latter symptom at one period, in 1847, continued to recur daily for several weeks. These attacks were rarely accompanied by either nausea, heartburn, flatulence, loss of appetite, constipation, or any other gastric symptom (though occasionally nausea and bilious vomiting were present); but with flushed face, and unusual quickness and irritability of mind. They occurred most frequently without any assignable cause, though sometimes a tart, a morsel of cheese, or an indulgence in the shape of fruit or green vegetables, etc., met with its due (or undue) degree of censure; and seldom lasted longer than ten or twelve hours. Medicines in repute for sick headache, such as alkalies, stimulants, stomachics, etc., afforded no relief during such an attack, an aperient alone seeming to shorten it, and sleep almost invariably removing it, whether the aperient were administered or not.

My patient resided in an open, healthy situation, was strictly temperate, lived by rule, and had plenty of out door exercise; the latter being principally walking, though mixed with carriage riding, horse exercise having been discontinued in consequence of the prolonged irregularity of the action of the heart in 1847. Attacks of temporary illness, as described, continued to recur under my own observation at intervals of about a week, for a series of years; and my belief was that he was a martyr to *duodenal indigestion*, and that his comfort could only be secured by strict dietetic and hygienic care, a fortnight's annual visit to the coast being a part of it.

Acting, however, upon a suggestion I had repeatedly made, a favourable opportunity presenting itself, he relinquished his business and removed into the country. The result was very striking. With freedom from care, and that necessity for keeping his attention fixed for several hours a-day, which the management of his business involved, his stomach became able (in his own words) "to digest anything", and his headache, instead of being a serious drawback to his happiness, was scarcely ever felt or thought of. It is clear that an over-tasked brain was at the root of these attacks, the digestive organs being only at fault in a secondary and subordinate manner.

I have been induced to narrate this case, because the evident connection of the removal of the disorder with the removal of its assumed cause, suggests a principle of considerable practical importance; and because also it affords an illustration of that class of cases in which such followers of illegitimate medicine as homœopaths and hydropaths are most successful, and in which their fallacy most readily imposes upon hard-working literary and other active and intelligent persons, for whose ailments mental rest is so often the panacea.

LARGE PENDULOUS TUMOUR OF THE VAGINA REMOVED BY LIGATURE.

By Edward A. Brown, Esq., Eastwood, Notts.

Mrs. M. applied to me, on the 6th of July, relative to a pendulous tumour attached by a broad neck, three and a half inches long by two and a half wide, to the right side of the vagina, which caused great inconvenience and distress.

The patient was very anæmic, and much reduced by continued suffering. Finding, moreover, large arterial and venous vessels permeating the structure of the tumour, I determined to remove it by the double-leaden ligature in preference to the knife or écraseur.

It was not necessary to administer chloroform. The neck being pinched between the fingers, a stout angular needle armed with leaden cords was passed through. Each cord was tightly fastened round the lateral halves, and another was made to encircle the entire neck, so as to compress the vessels wounded by the perforation and restrain the oozing. As ulceration progressed, these were twisted to embrace the parts closer and closer; and the mass, weighing three pounds six ounces and a half, came off in nine days, without the loss of any blood, or a bad symptom. The patient is now perfectly well, and following her usual duties.

On section, I found the tumour to be of a fibro-carcinomatous character; but as it was taken off high up, and before the lymphatic vessels had become impregnated with the scirrhoid virus, there seems no disposition to a reinstitution of the disease.

I am not aware that it is usual to remove tumours of *this size* in a similar manner; and the plea I adduce in defence of the present case is, that in the reduced and debilitated condition of the patient, the loss of but a trifling amount of blood would in every probability have been fatal.

British Medical Journal.

SATURDAY, OCTOBER 2ND, 1858.

OUR PREVENTABLE MORTALITY.

THAT "it is appointed unto all men once to die", is so obvious a truth as to require no elaborate array and comparison of facts to support it. But, in the solemnity of this inevitable law of mortality, we have been apt to lose sight of another great axiom—that it is equally appointed to men to *live* for a period of seventy, eighty, or more years. Death at that period is the result of that natural decay to which all organised beings are subject; and all mortality at earlier ages is a deviation from the great law of human existence—it is premature.

How far this premature mortality, which in this country amounts to nine-tenths of the total deaths, is dependent on causes capable of being avoided or counteracted, is a question deserving the most careful investigation. This task has been especially undertaken, and in a great measure performed, in a valuable government publication lately issued.* The authors of this elaborate work, Mr. Simon and Dr. Greenhow, will have done a memorable service, if they succeed in awakening the attention of the public to the possibility of bringing our average duration of life nearer to that which has been fixed by the Creator.

In starting the solution of the question of the preventability of premature death, it is first necessary, as Mr. Simon has done, to take note of those influences which, though they may be modified, and reduced to their *minimum* of destructiveness, are in the nature of things not absolutely preventable. In this class are comprised congenital and hereditary influence; the infectious disorders, small-pox, hooping-cough, measles, and scarlatina; privation of the necessaries of life; accidental injuries and criminal violence; intemperance and profligacy. All these must have an influence in raising the death-rate above what it would be if men lived to the probably normal age of eighty years. The yearly normal death-rate, at this calculation, would be 1250 in 100,000. The average death-rate of England, however, is 2,266. In about one-tenth of the districts, it ranges from 1500 to 1700; while, in the remainder, it ascends above this latter number, reaching sometimes as much as 3100, 3300, and 3400. It may be assumed, as has been done by Mr. Simon, that the unavoidable influence of these causes of mortality is such as to raise the death-rate from 1250 to 1500 or 1700; and then, with the knowledge that these causes are more fatal in some districts than in others, comes the conclusion as to their being aided by concurrent circumstances. As Mr. Simon says:

"There will be strong *primâ facie* grounds for believing that the *local excesses of fatality are due to local circumstances of aggravation;* that *these aggravating local circumstances are such as it is fully possible to counteract; and that, of the total mortality ascribed to these influences in England, a very large share is preventable.*"

Among the recognised inevitable causes of premature death are two classes of disease of especial frequency—phthisis and other lung-diseases; and the special disorders of childhood.

The mortality from diseases of the lungs, including phthisis, has undergone a most careful examination by Dr. Greenhow. Comparing the death-rates of various districts, he has found the mortality from phthisis (without distinction of age or sex) to range from 134 to 445 in 100,000 of the population. The adult female death-rate from phthisis varies from 229 to 588. Further, Dr. Greenhow has classified together and compared the districts according to the industrial occupations of their inhabitants; viz., agriculture; commerce and maritime pursuits; mining; manufacture of metals; manufacture of earthenware; manufacture of textile fabrics; and manufacture of shoes. The mortality among males and females respectively is compared; and these researches result in the confirmation of an inference which has already been enunciated, but which now becomes established on a most extended basis, that

"In proportion as the male and female populations are severally attracted to in-door branches of industry, in such proportion, other things being equal, their respective death-rates by phthisis are increased."

Is the increased mortality from phthisis, under these circumstances, a necessary result of in-door and other sedentary occupations, or is it connected with collateral circumstances? On this point, Mr. Simon remarks:

"Removable causes have notoriously in many cases so much to do with the increase of tubercular disease, that it at least deserves patient and skilful inquiry to determine whether the development of phthisis among men and women engaged in manufacture really be an essential appanage of such employment, even when not excessively laboured in, or depend perhaps on defective ventilation and other removable accidents of the system. The opinion of the medical profession would certainly incline to the latter view. It would suggest that an inquiry into the sanitary circumstances of our great manufacturing populations must almost certainly lead to the discovery of evils which may be palliated or removed, and consequently to the indication of means for lessening this cruel tax on the industry of our people. Inadequate ventilation is an influence not unlikely to prevail where numbers of persons

* Papers Relating to the Sanitary State of the People of England: being the Results of an Inquiry into the Different Proportions of Death produced by Certain Diseases in different Districts in England; communicated to the General Board of Health by EDWARD HEADLAM GREENHOW, M.D., Licentiate of the Royal College of Physicians, Lecturer on Public Health at St. Thomas's Hospital, and Physician to the Western General Dispensary; with an Introductory Report, by the Medical Officer of the Board, on the Preventability of certain kinds of Premature Death. Presented to both Houses of Parliament by Command of Her Majesty. London. Printed by George E. Eyre and William Spottiswoode. 1858.

work together in one in-door employment; and medical experience would point very decidedly to this influence, wherever it exists, as an adequate explanation of high tubercular mortality."

Again, the researches of Dr. Greenhow show, with respect to other (non-tubercular) pulmonary diseases, that high death-rates from these are mainly dependent on the local pursuit of particular branches of industry. The conclusions long since arrived at as to the causation of the "Sheffield grinders' disease", and other lung-diseases incident to special occupations, have now been generalised and applied on a broad scale. Mr. Simon thus sums up the amount of our knowledge on the subject:—

"Two kinds of occupation are especially hurtful; first, those which give rise to mechanical irritation of the air passages, by diffusing in the air of workplaces any considerable amount of metallic or earthy grit, or even of flax-dust or cotton or woollen fluff; secondly, those in which the operatives are exposed to abrupt changes of temperature. At the head of the first class, Dr. Greenhow places the mining of lead, tin, and copper; and he specially refers to 'the most exclusively lead-mining district in England,' as one which loses by diseases of the chest in consequence of its prevalent employment a 'larger annual proportion of its adult male inhabitants than the unhealthiest city in the kingdom,' and as 'the place in which there is a larger proportion of widows than in any other place in the kingdom.' Towns which are the seat of fine manufacture in metals (especially of cutlery-manufacture) and towns where certain textile manufactures are carried on, and districts of pottery-manufacture, are shown to suffer high mortality from the same class of diseases. Again, in some of the above-named occupations, as well as in various other branches of industry, there are processes which require to be conducted at a high temperature; so that the operatives, especially in winter, are exposed to vicissitudes of heat and cold, and derive from this cause such liability to lung disease as affects very considerably the death-rate of the district. It is not easy to separate this influence from the other with precision enough for statistical purposes; but it seems probable that the high mortality of male operatives in pottery-manufacture may be more due to this cause, while that of female operatives in the same manufacture would be rather due to mechanical irritation of the lungs. For the biscuit-rubbing (which diffuses a quantity of gritty dust) is chiefly done by women; while the slip-kilns (in which the pappy 'slip' of clay and flint is evaporated at a high temperature) as well as the baking kilns and furnaces are of course tended by men."

This summary of Dr. Greenhow's investigations of the mortality from lung-disease, and other facts which are developed in his statistics, ought to give rise to serious consideration. If pulmonary disease, in some form, is a regular concomitant of certain occupations, the obvious course is, to endeavour to find out what are the conditions which really render the occupation unwholesome, and to endeavour to remove or counteract them. But this is not all. In purely agricultural districts, the mortality, male and female, from phthisis is *below* the average of that in England and Wales. In some districts —lead-mining districts especially—the male mortality from lung-disease greatly exceeds the average; while among the females, who *do not appear to be exposed to the same unhealthy influences as the men*, the mortality from the same cause closely approaches the average, whereas it ought to fall below this. What does this mean? Probably just what is expressed by Mr. Simon and Dr. Greenhow—that in the course of the ages during which the populations of some districts have worked in unhealthy occupations, the seeds of tubercular disease have been sown deeply in their constitutions. This explanation may or may not be as correct as it is plausible: in any case, it calls for further examination.

We shall return to the subject of our preventable mortality.

Association Intelligence.

SOUTH-EASTERN BRANCH:

SOCIAL AND SCIENTIFIC MEETINGS OF THE MEMBERS RESIDENT IN ROCHESTER, MAIDSTONE, GRAVESEND, DARTFORD, AND THEIR VICINITIES.

Social and scientific meetings of members of the South-Eastern Branch resident in Rochester, Maidstone, Gravesend, Dartford, and their vicinities, will be held on the undermentioned days:—

Friday, October 29th, 1858, at 4.30, at the Town Hall, Maidstone.

Friday, March 25th, 1859, at 3.30, at the Town Hall, Gravesend.

Friday, April 29th, 1859, at 3.30, at the Town Hall, Dartford.

The members resident in this district will be gratified by the attendance and assistance of any of the members of the British Medical Association.

James Dulvey, *Honorary Secretary.*

Brompton, Chatham.

EAST YORK AND NORTH LINCOLN BRANCH: GENERAL MEETING.

A General Meeting was held at the Beverley Arms, Beverley, on Thursday, September 23rd, Sir H. Cooper, M.D., President, in the chair. There were also present: F. B. Anderson, Esq. (Hessle); J. P. Bell, M.D. (Hull); R. G. Boulton, M.D. (Beverley); W. W. Boulton, Esq. (Beverley); J. Dix, Esq. (Hull); J. Hill, Esq. (Cave); K. King, M.D. (Hull); J. A. Locking, Esq. (Hull); W. J. Lunn, M.D. (Hull); J. Morley, Esq. (Barton-on-Humber); Thomas Sandwith, M.D. (Beverley); and, as visitors, C. Le Gay Brereton, Esq., and F. Calvert, Esq., Beverley. These gentlemen were proposed as members of the Association for the next year.

PRESIDENT'S ADDRESS.

The President opened the business of the Meeting by congratulating the members on assembling for the first time in the capital of the East Riding. He then remarked on the small mortality from epidemic diseases in the district, particularly from diarrhœa, etc., which have been less prevalent during the last season than in any previous one since the year of cholera (1849). It was, however, remarkable that the deaths from general causes had been more numerous for several quarters than for the corresponding periods of previous years. He supposed that this might be a reaction from the limited mortality which followed the cholera season, and the old and infirm having been carried off by that epidemic.

The President remarked upon the new Medical Act, that though it might not secure many of the advantages which had been expected from it, it had yet conferred decided benefits upon the profession. He analysed the Act, and showed that it embraced the great principles for which the Association had been so long contending.

CASES AND COMMUNICATIONS.

The following cases and papers were read:—

1. Death from Wound by a Needle; with Specimen. By John Dix, Esq.

2. A Fallacy in Physical Diagnosis of Abdominal Tumour. By John Dix, Esq.

3. On Points of Election in Amputation of the Leg. By K. King, M.D.

4. Cases of Poisoning by Phosphorus. By Sir H. Cooper, M.D.

5. Case of Rupture of Uterus in Early Pregnancy. By Sir H. Cooper, M.D.

We have received several of these papers for publication.

The members closed the business of the day by dining together.

ROCHESTER, MAIDSTONE, GRAVESEND, AND DARTFORD DISTRICT MEETINGS, IN CONNEXION WITH THE SOUTH-EASTERN BRANCH.

THE first meeting for the present winter session was held at the Crown Inn, Rochester, on Friday, September 24th, at 5.15.; J. CORDY BURROWS, Esq., Mayor of Brighton and President of the Branch, in the Chair. There were also present: John Armstrong, M.D. (Gravesend); F. J. Brown, M.D. (Chatham); John J. D. Burns, M.D. (Chatham Convict Prison); William Burton, Esq. (Brompton, Chatham); James Dulvey, Esq. (Brompton, Chatham); Frederick Fry, Esq. (Maidstone); H. M. Gould, Esq. (Wateringbury); J. H. Gramshaw, Esq. (Gravesend); William Hoar, Esq. (Maidstone); H. W. Joy, Esq. (Maidstone); Adam Martin, M.D. (Rochester); C. J. Pinching, Esq. (Gravesend); Flaxman Spurrell, (Bexley Heath); John W. Woodfall, M.D. (Maidstone); and as visitors, John Langston, Esq. (Strood); S. Norton, M.D. (West Malling); E. A. Steddy, Esq. (Chatham); and Henry Weeks, Esq. (Brompton).

The minutes of the last meeting having been read and confirmed,

The PRESIDENT opened the session by an appropriate address.

ELECTION OF SECRETARY.

It was then moved by Dr. MARTIN (Rochester), seconded by Dr. WOODFALL (Maidstone), and resolved unanimously—

"That Mr. Dulvey be requested again to undertake the office of Secretary for the ensuing year."

MEDICAL REGISTRATION.

It was resolved unanimously—

"That Dr. Armstrong of Gravesend, Mr. Culhane of Dartford, Mr. Dulvey of Brompton, Mr. Fry of Maidstone, Mr. Hoar of Maidstone, Mr. Gramshaw of Gravesend, and Dr. Martin of Rochester, be appointed a Committee to watch over the coming registration under the new Medical Act, on behalf of the members of the Association resident in this district."

PAPERS AND COMMUNICATIONS.

1. Dr. BURNS, of the Chatham Convict Prison, read the details of an interesting case which had occurred in that establishment.

2. Dr. ARMSTRONG read a valuable paper on the Nature and Treatment of Hooping-Cough.

These communications having been severally discussed, it was resolved unanimously, on the motion of Mr. HOAR, seconded by Mr. DULVEY—

"That the sincere thanks of the meeting be given to Dr. Burns and Dr. Armstrong, and that they be requested to allow their papers to be published in the JOURNAL of the Association."

VOTE OF THANKS TO THE PRESIDENT.

It was also resolved unanimously, on the motion of Dr. WOODFALL, seconded by Mr. GRAMSHAW—

"That the sincere thanks of the meeting be given to the President of the Branch, for his able conduct in the chair, and for his kindness in having come from so great a distance to countenance and support these district meetings."

THE DINNER.

The members and visitors then adjourned to dinner: J. Cordy Burrows, Esq., in the Chair, with J. Dulvey, Esq., as Vice-Chairman. Justice having been done to the substantial portion of the entertainment, the usual loyal and patriotic toasts were given and received with the enthusiasm which from time immemorial has distinguished the "Men of Kent".

Dr. MARTIN then proposed "Prosperity to the South-Eastern Branch of the Association, with its President, the Mayor of Brighton."

The PRESIDENT returned thanks, expressing his intention, if possible, to attend every one of these district meetings during the year of his presidency, and to make those occasions his holidays. [*Great cheering.*]

The following were then given:—

"Prosperity to the District Meetings;" acknowledged by Mr. FRY, of Maidstone.

"Those Gentlemen who have read Papers;" responded to by Dr. ARMSTRONG, of Gravesend.

"Our Maidstone Friends;" acknowledged by Dr. WOODFALL.

"The Honorary Secretary, Mr. Dulvey;" acknowledged by that gentleman, who proposed "The Kent Benevolent Medical Society," reminding the meeting that, since its establishment, it had distributed upwards of twelve thousand pounds among the necessitous widows and orphans of medical men resident in the county. [*Loud cheers.*]

The last toast was, "Our Country Brethren;" responded to by Mr. GOULD, of Wateringbury.

The meeting then broke up, at 9.30, after a most agreeable evening.

The next assembly will be at the Town Hall, Maidstone, on Friday, October 29th, at 4.15.

Reports of Societies.

AMERICAN MEDICAL ASSOCIATION.

[*Concluded from page* 815.]

REPORTS.

The following Reports from the Committees on the several subjects were presented (some being read), and were referred to the Committee on Publication.

Spontaneous Umbilical Hæmorrhage of the Newly Born By Foster Jenkins, M.D. (New York.)

Influence of Marriages of Consanguinity upon Offspring. By S. M. Bemis, M.D. (Kentucky.)

Functions of the Different Portions of the Cerebellum. By E. Andrews, M.D. (Chicago.)

Nervous Concomitants of Febrile Diseases. By H. F. Campbell, M.D. (Georgia.)

Treatment of the Results of Obstructed Labour, with a Series of Illustrations. By J. Marion Sims, M.D. (New York.)

The Treatment best adapted to each Variety of Cataract, with the Method of Operation, Place of Selection, Time, Age, etc. By M. Stephenson, M.D. (New York.)

Medical Jurisprudence of Insanity, and the Testimony of Skilled Witnesses in the Courts of Justice. By C. B. Coventry, M.D. (New York.)

THE CASE OF DR. REESE.

The case of Dr. D. M. REESE, which has excited much interest among the medical profession in America, came under the notice of the Association. It appears that Dr. Reese had recommended Dr. McClintock, of Philadelphia, to the Board of Health of that city, as a man qualified to take charge of Blockley Hospital. Dr. McClintock, some few years ago, furnished to certain parties, for a pecuniary consideration, the prescriptions for various preparations, which were afterwards advertised for general sale as the McClintock medicines. Dr. McClintock was alleged to have thus forfeited his position as an honourable member of the profession. For this conduct he was expelled from the American Medical Association; and it was complained that a vice-president of the same Association should have given him a recommendation.

At the commencement of the meeting, Dr. REESE presented the following written apology.

"*To the Officers and Members of the American Medical Association.*

"The undersigned, one of the Vice-Presidents of the American Medical Association, having, during the interval since our last annual meeting, certified to the professional fitness for the charge of the Blockley Hospital, at Philadelphia, of an individual who had been expelled from this body for a violation of our code of ethics, after consultation with the other officers, and yielding to the advice of other personal friends, desires to say to the Association now assembled—

"1. That, in giving said certificate, he was prompted solely by motives of sympathy and humanity to a fallen brother, who had been a personal friend prior to his offence; and that he did not realise, acting under the impulse of the moment, that his individual act could be construed by the profession as indicating hostility to his brethren.

"2. That while his own mind is clear that his certificate contained only the truth, and that, under his peculiar relations to the party concerned, he could not withhold his certificate of medical qualification consistent with conscience and duty, yet he is ready to concede that he had no abstract right to relieve the party from the censure of the Association until this body had restored him to its fellowship.

"3. That, so far from intending any disrespect to the Association, or to its act of discipline, the undersigned had publicly sustained and defended both. He, therefore, disclaims the inference from his certificate that he intended to recommend to

a high professional office, a man whom the Association had excluded, and thereby nullify the action of this body.

"And, finally, with these statements and disclaimers, the undersigned, while retaining his own opinion of the rectitude of his motives, and of his duty, under the peculiar circumstances of the case, is nevertheless prepared to defer to the judgment of those whom he knows to be his friends, that he erred in doing what he had no right to do, in view of his official position in the Association, and is hence called upon to offer this explanation and apology to his brethren.

"David M. Reese."

Dr. Condie (Pennsylvania) moved that the apology be received.

An amendment, declaring that the code of ethics of the Association had been violated, was offered. The amendment was not agreed to; and the original motion of Dr. Condie was adopted.

On the motion of Dr. Atlee (Pennsylvania), the statement of Dr. Reese was ordered to be entered upon the minutes.

Dr. James Bryan, of Pennsylvania, said that he was in the same position with Dr. Reese, and offered a similar statement; which was, on motion of Dr. Condie, received.

At a subsequent period of the meeting, the Association formed itself into a Committee of the whole, to consider the cases of Drs. Reese and Bryan: Dr. Edwards, of Ohio, in the Chair.

A memorial from the Philadelphia County Medical Society calling the attention of the Association to the fact of Drs. Reese and Bryan recommending Dr. McClintock as Physician-in-Chief of the Blockley Hospital, was presented by a committee of the above-mentioned society, and read.

On motion of Dr. Humphreys (Indiana), it was resolved, that each member of the committee of the whole be restricted to five minutes, allowing Dr. Reese whatever time he wished to defend himself in. After much discussion—

Dr. Reese said that he had intended to make a satisfactory apology. Such was his earnest wish and desire, and he wished to frankly state that he had no mental reservation, neither did he attempt to conceal anything. He made the statement which had been read without reservation and without evasion. He ultimately drafted an apology, which, after discussion, was presented and accepted in the following form:

"The undersigned regrets that he certified to the professional qualifications for Blockley Hospital, Philadelphia, of an expelled member of this body, and hereby offers this apology for his departure from the ethical code."

THE WASHINGTON MONUMENT.

A report was read on the part of the Committee appointed to select an inscription for a stone to be inserted in the Washington Monument. At the suggestion of the late Dr. A. L. Pierson, of Salem, Massachusetts (made at the meeting in New York, just ten days before his death), the design of the celebrated painting of Girodet-Tricoson, representing Hippocrates refusing the presents of the Persian king, Artaxerxes, and his invitation to leave Greece, and reside and practise among her enemies, was selected. This was sculptured upon a block of Vermont marble, with the motto, "*Vincit amor patriæ*"; and the stone was now at the monument grounds. The entire expense was 1,000 dollars. The amount contributed by members individually was 501 dollars and 30 cents; the balance was voted from the treasury of the society. Accompanying the report was a letter from the Secretary of the Washington National Monument Association, and a resolution of thanks to the railroad companies, by whose liberality the stone was brought from Lancaster (where it was sculptured) to Washington free of charge. The report was accepted, and the resolution was passed.

THE INSPECTORSHIP OF DRUGS AND MEDICINES IN NEW YORK: DISMISSAL OF DR. BAILEY.

Dr. Edwards reported, from the Committee of Nomination, the following resolution:

"That a committee of nine be appointed by the chair, to wait on the Hon. Howell Cobb, Secretary of the Treasury, and respectfully request the restoration of Dr. M. J. Bailey as Inspector of drugs and medicines for the port of New York."

Dr. Edwards urged the adoption of this resolution. He considered the law regulating the inspection of drugs and medicines an important law. Its paternity could be clearly traced to the action of this Association in Baltimore. He had urged its adoption at that time; he had taken it from there into Congress, and he had received upwards of nine hundred letters advising, instructing, and aiding him. He had succeeded, and he felt that in so doing he had performed a great work. In obtaining the passage of the Act, he had been seconded by Dr. Bailey, who had for years been an inspector of drugs, with a view of ascertaining their commercial value for the custom-house, and had discovered that two-thirds of the drugs and medicines imported were adulterated, some of them grossly adulterated. After the passage of the Act, Dr. Bailey was very properly appointed, and had given the most perfect satisfaction to the Colleges of Pharmacy, to practitioners, and to all concerned. Yet, after filling the office acceptably, Dr. Bailey had been removed. There was no paper on file against his qualifications, against his fitness, against his ability; but he had been removed upon the recommendation of four New York gentlemen. Now, he did not intend to quietly see a gentleman so eminently qualified as Dr. Bailey is, put on one side upon such a recommendation, to give way to a man who is said to be unfit for the place.

After much discussion, the resolution was carried, with the addition of the words, "at the same time disclaiming all political considerations".

Subsequently, Dr. Dunbar urged the reconsideration of the vote.

Dr. Payne (Virginia) opposed the reconsideration.

Dr. Tyler advocated it, and asked if the Association was formed to wait on executive officers, and to dictate to them whom they shall remove and whom they shall appoint. Many gentlemen around him, he was assured, had voted for the resolution without due reflection, and he trusted with confidence in their sober second thought. The press and the profession, he felt confident, would denounce the Association if it entered into the wide field of politics. It was instituted to promote the great cause of science, not to join issue with Government.

Dr. Morgan also advocated a reconsideration. He was not a partisan. Although he resided in Washington, he had no personal acquaintance with the President or the Secretary of the Treasury, but he was confident that they would not have made the change without good reason; and it was not the mission of the Association to criticise or to attempt to change their views.

After further discussion, the motion for reconsideration was carried; and ultimately the subject was indefinitely postponed.

THE CENSUS: VITAL STATISTICS.

Dr. W. S. Sutton offered the following resolution:—

"That a committee of three, to be composed of members belonging to the District of Columbia, be appointed, whose duty it shall be to urge upon the Census Bureau the great interest which this Association feels in a properly conducted census, and especially that portion relating to vital statistics; and the importance of securing, at an early day, the services of a physician conversant with vital statistics, to assist in arranging the schedules in that department of the census to be taken in 1860; as also to aid in a general supervision over that branch of the census."

This resolution was adopted.

REGISTRATION OF BIRTHS, MARRIAGES, AND DEATHS.

Dr. W. L. Sutton (Kentucky) offered the following resolution:—

"That a committee of five be appointed, whose duty it shall be to present to the next meeting of this Association a plan for an uniform registration of births, marriages, and deaths, including the nomenclature, as also the classification of diseases, to be adopted in registration reports."

The resolution was adopted.

DECEASED MEMBERS.

On motion of Dr. H. Fraser Campbell (Georgia) it was resolved,

"That this Association has learned, with deep regret, of the deaths of the following permanent members of this body; Marshall Hall, (England); C. R. Walton, (Georgia); S. W. Clanton, (Alabama); W. G. Craghead, (Virginia); J. K. Downes, (Connecticut); N. S. Pike, (Connecticut); W. W. Morris, (Delaware); and W. Gries, (Pennsylvania)."

SURGERY IN CHINA.

Dr. Peter Parker, ex-commissioner to China, was introduced, and exhibited some curious specimens of *calculi*, as the results of thirty-eight operations upon Chinese. They were of various shapes and composition, and weighed from a few drachms up to three, seven, and eight ounces. Out of the thirty-eight patients, all but five or six recovered perfect health. Dr. Parker proceeded to state that he had treated in China, at the hospital under his charge, fifty-three thousand cases. Pictures of the most curious cases he had brought to America,

and they were on exhibition in the room below. At no very distant period he hoped to place in a permanent form the results of his labours, with illustrations. He had probably performed upwards of a thousand operations for cataract. One day he operated in sixteen cases, the youngest being a mere child, and the oldest an old lady seventy-nine years of age. She came, led by a servant, submitted heroically to operations on both eyes the same day, and in a fortnight had her sight perfectly restored. In acknowledging a vote of thanks, Dr. Parker said he had among his patients all classes, from members of the imperial family down to beggars. His greatest difficulty had been to persuade his patients that he could not cure all diseases.

A DIPLOMA REVOKED.

Dr. John Watson, (New York), from the Committee on Ethics, reported as follows :—

Whereas, it appears from undoubted testimony that the New York Medical College have conferred the degree of Doctor of Medicine upon a notorious quack of the name of John F. Dunker, of Newark, the Faculty, in the person of the President of said College, wish here to declare that this degree was obtained under gross deception, and false testimonials furnished by said Dunker and his friends, and they therefore revoke and annul his diploma, and declare said Dunker to be unworthy of patronage or support, from authority conferred upon him by this diploma."

On motion, the report was adopted.

[Various other resolutions of more or less interest were passed, and business transacted, in addition to what is given above. The meeting appears to have been very satisfactory; about five hundred members were present.]

BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

TWENTY-EIGHTH ANNUAL MEETING.

[*Held in Leeds, Sept. 22nd, and following days*, 1858.]

The twenty-eight annual meeting of the British Association for the Advancement of Science commenced on September 22nd. The General Committee met at one o'clock, in one of the Assize Courts of the Town Hall, when the General Report and the Kew Report were read by General Sabine, and the Report of the Parliamentary Committee was presented.

In the evening, at half-past eight o'clock, the first general meeting was held in the New Hall. The retiring President, the Rev. Dr. Lloyd, took the Chair, and at once resigned it to Professor Owen, the President for the year, who delivered a long and interesting address, from which we extract some passages. After commenting on the promotion of science as a duty allotted to man, and giving a brief summary of the facts made known by geology, he compared the aims and objects of the Association with those sketched out by Bacon in his *New Atlantis*. The progress made by science since Bacon's time was then noticed; and the following remarks were made on

Magnetism and Electricity: Unity of Forces. Not to trespass on your patience by tracing the progress of magnetism from Gilbert to Oersted, I cannot but advert to the time, 1807, when the latter tried to discover whether electricity in its most latent state had any effect on the magnet, and to his great result, in 1820, that the conducting wire of a voltaic circuit acts upon a magnetic needle, so that the latter tends to place itself at right angles to the wire. Ampère, however, succeeded in demonstrating that the voltaic wire was affected by the action of the earth itself as a magnet. In short, the generalisation was established, and with a rapidity unexampled, regard being had to its greatness, that *magnetism and electricity are but different effects of one common cause.* This has proved the first step to still grander abstractions—to that which conceives the reduction of all the species of imponderable fluids of the chemistry of our student days, together with gravitation, chemicity, and neuricity, to interchangeable modes of action of one and the same all-pervading life essence. Galvani arranged the parts of a recently mutilated frog so as to bring a nerve in contact with the external surface of a muscle, when contraction of the muscle ensued. He concluded that the contraction was a necessary consequence of the passage of electricity from one surface to the other by means of the nerve. He supposed that the electricity was secreted by the brain, and transmitted by the nerves to different parts of the body, the muscles serving as reservoirs of the electricity. Volta made a further step by showing that, under the conditions or arrangements of Galvani's experiments, the muscle would contract, whether the electric current had its origin in the animal body, or from a source external to that body. Galvani erred in too exclusive a reference of the electric force producing the contraction to the brain of the animal: Volta in excluding the origin of the electric force from the animal body altogether. Du Bois Reymond has shown that any point of the surface of a muscle is positive in relation to any point of the divided or transverse section of the same muscle; and that any point of the surface of a nerve is positive in relation to any point of the divided or transverse section of the same nerve. Mr. Baxter has deduced important conclusions on the origin of the muscular and nerve currents, as being due to the polarised condition of the nerve or muscular fibre, and the relation of that condition to changes which occur during nutrition. From the present state of neuro-electricity, it may be concluded that nerve force is not identical with electric force, but that it may be another mode of motion of the same common force; it is certainly a polar force, and perhaps the highest form of polar force.

Chemistry. The present tendency of the higher generalisations of chemistry seems to be towards a reduction of the number of those bodies which are called "elementary"; it begins to be suspected that certain groups of so-called chemical elements are but modified forms of one another; that such groups as chlorine, iodine, bromine, fluorine, and as sulphur, selenium, phosphorus, boron, may be but allotropic forms of some one element. Organic chemistry becomes simplified as it expands; and its growth has of late proceeded, through the labours of Hofmann, Berthelot, and others, with unexampled rapidity. An important series of alcohols and their derivatives, from amylic alcohol downwards; as extensive a series of ethers; the formic, butyric, succinic, lactic, and other acids, together with other important organic bodies, are now capable of artificial formation from their elements, and the old barrier dividing organic from inorganic bodies is broken down. It impossible to foresee the extent to which chemistry may not ultimately, in the production of things needful, supersede the present vital agencies of nature, "by laying under contribution the accumulated forces of past ages, which would thus enable us to obtain in a small manufactory, and in a few days, effects which can be realised from present natural agencies only when they are exerted upon vast areas of land, and through considerable periods of time. The lecturer here noted the progress of photography, the discoveries of Electro-magnetism, and the development of the electric telegraph from Oersted's painfully pursued experiments.

Zoology. To perfect the natural system of plants has been the great aim of botanists since Jussieu. To obtain the same true insight into the relations of animals has stimulated the labours of zoologists since the writings of Cuvier. To that great man appertains the merit of having systematically pursued and applied anatomical researches to the discovery of the true system of distribution of the animal kingdom; nor, until the Cuvierian amount of zootomical science had been gained, could the value and importance of Aristotle's *History of Animals* be appreciated. There is no similar instance, in the history of science, of the well-lit torch gradually growing dimmer and smouldering through so many generations and centuries before it was again fanned into brightness, and a clear view regained, both of the extent of ancient discovery, and of the true course to be pursued by modern research. Rapid and right has been the progress of zoology. Not only has the structure of the animal been investigated, even to the minute characteristics of each tissue, but the mode of formation of such constituents of organs, and of the organs themselves, has been pursued from the germ, bud, or egg, onward to maturity and decay. To the observation of outward characters is now added that of inward organisation and developmental change. Three principles are now recognised to have governed the construction of animals:—unity of plan, vegetative repetition, and fitness for purpose. The independent series of researches by which students of the articulate animals have seen, in the organs performing the functions of jaws and limbs of varied powers, the same or homotypal elements of a series of like segments constituting the entire body, and by which students of the vertebrate animals have been led to the conclusion, that the maxillary, mandibular, hyoid, scapular, costal and pelvic arches, and their appendages sometimes forming limbs of varied powers, are also modified elements of a series of essentially similar and vertebral segments, mutually corroborate their respective conclusions.

The study of homologous parts in a single system of organs

—the bones—has mainly led to the recognition of the plan or archetype of the highest primary group of animals, the *Vertebrata*. The next step of importance will be to determine the homologous parts of the nervous system, of the muscular system, of the respiratory and vascular system, and of the digestive, secretory, and generative organs in the same primary group or province. What has been effected and recommended, in regard to homologous parts in the *Vertebrata*, should be followed out in the *Articulata* and *Mollusca*. The present state of homology in regard to the *Articulata* has sufficed to demonstrate that the segment of the crust is not a hollow expanded homologue of the segment of the endo-skeleton of a vertebrate. There is as little homology between the parts and appendages of the segments of the vertebrate and articulate skeletons respectively. The parts called mandibles, maxillæ, arms, legs, wings, fins, in insects and crustaceans, are only "analogous" to the parts so called in vertebrates. Most difficult and recondite are the questions in face of which the march of homology is now irresistibly conducting the philosophic observer. Such, for instance, as the following: Are the nervous, muscular, digestive, circulating, and generative systems of organs more than functionally similar in any two primary provinces of the animal kingdom? Are the homologies of entire systems to be judged of by their functional and structural connexions, rather than by the plan and course of their formation in the embryo? It may be doubted if embryology alone is decisive of the question whether homology can be predicated of the alimentary canal in animals of different primary groups or provinces. It is significant, however, of the lower value of embryological characters, to note that the great leading divisions of the animal kingdom, based by Cuvier on Comparative Anatomy, have merely been confirmed by Von Baer's later developmental researches. And so, likewise, with regard to some of the minor modifications of Cuvier's provinces, the true position of the *Cirripeda* was discerned by Straus Durkheim and Macleay, by the light of anatomy, before the discovery of their metamorphoses by Thomson.

If, however, embryology has been over-valued as a test of homology, the study of the development of animals has brought to light most singular and interesting facts; and I now allude more especially to those that have been summed up under the term "Alternate-generation," "Parthenogenesis," "Metagenesis," etc. John Hunter first enunciated the general proposition, that "the propagation of plants depended on two principles, the one that every part of a vegetable is 'a whole,' so that it is capable of being multiplied as far as it can be divided into distinct parts; and other, that certain of those parts become reproductive organs, and produce fertile seeds." Hunter also remarked, that "the first principle operated in many animals which propagate their species by buds or cuttings;" but that, whilst in animals, it prevailed only in "the more imperfect orders," it operated in vegetables "of every degree of perfection." The experiments of Trembley on the fresh water polype, those of Spallanzani on theNaids, and those of Bonnet on the Aphides had brought to light the phenomena of propagation by fission, and by gemmation or buds, external and internal, in animals, to which Hunter refers. The earliest formal supercession of Harvey's axiom, "*omne vivum ob ovo*," appears to be Hunter's proposition of the dual principle above quoted. The experiments of Redi, Malpighi, and others had progressively contracted the field to which the "*generatio æquivoca*" could with any plausibility be applied.

Among the most brilliant of recent acquisitions to this part of physiology, have been the discoveries which have resulted from special investigations. Küchenmeister and Von Siebold have been the chief labourers in this field. Since the time when it was first discovered that plants and animals could propagate in two ways, and that the individual developed from the bud might produce a seed or egg, from which also an individual might spring capable of again budding,—since this alternating mode of generation was observed, as by Chamisso and Sars, in cases where the budding individual differed much in form from the egg-laying one—the subject has been systematised, generalised, with an attempt to explain its principle, and greatly advanced, especially, and in a highly interesting manner, in Von Siebold's late treatise, entitled *Wahre Parthenogenesis bei Schmeterlingen und Bienen*, in which the virgin production of the male or drone-bee is demonstrated. The now well-investigated phenomena of parthenogenesis in Hydrozoa have resulted in showing, as in the analogous case of entozoa, that animals differing so much in form as to have constituted two distinct orders or classes, are really but two terms of a cycle of metagenetic transformations—the acalephan Medusa being the sexual locomotive form of the agamic rooted budding polype, just as the cestoid tænia is of the cystic hydatid. In Hydrozoa (hydroid polypes or sertularians) the young are propagated, as in plants, by "buds," and also, as in most plants, by "germs" or "seeds:" these latter are contained in "germ-sacs" projecting from the outer surface, which is another analogy to the flowering parts of plants.

The changes of form which the representative of a species undergoes in successive agamically propagating individuals are termed the "metagenesis" of such species. The changes of form which the representative of a species undergoes in a single individual, are called the "metamorphosis." But this term has practically been restricted to the instances in which the individual, during certain phases of the change, is free and active, as in the grub of the chaffer, or the tadpole of the frog. It had been suggested that stages answering to those represented by the apodal and acephalous maggot of the diptera, by the hexapod larva of the carabi, and by the hexapod antenniferous larva of the meloe were really passed through by the orthopterous insect, before it quitted the egg. Mr. Andrew Murray has recently made known some facts in confirmation of this view. He had received a wooden idol from Africa, behind the ears of which a blatta had fixed its egg-cases, after which the whole figure had been rudely painted by the natives. and these egg-cases were covered by the paint. No insect could have emerged without breaking through the case and the paint; but both were uninjured. In the egg-cases were discovered,—1st, a grub-like larva in the egg; 2nd, a cocoon in the egg containing the unwinged, imperfectly-developed insect, 3rd, the unwinged, imperfectly-developed insect in the egg, free from the cocoon, and ready to emerge.

Geographical Distribution of Plants. Observations of the characters of plants have led to the recognition of the natural groups or families of the vegetable kingdom, and to a clear scientific comprehension of that great kingdom of nature. The geographical distribution of plants rests perhaps at present necessarily, on an assumption, viz., that each species has been created, or come into being, but once in time and space; and that its present diffusion is the result of its own law of reproduction, under the diffusive or restrictive influence of external circumstances. These circumstances are chiefly temperature and moisture, dependent on the distance from the source of heat and the obliquity of the sun's rays, modified by altitude above the sea-level. Both latitude and altitude are further modified by currents of air and ocean. Thus large tracts of dry land produce dry and extreme climates, while large expanses of sea produce humid and equable climates. Agriculture affects the geographical distribution of plants, both directly and indirectly. It also effects local modifications of climate. Certain species of plants require more special physical conditions for health; others more general conditions; and their extent of diffusion varies accordingly. Thus the plants of temperate climates are more widely diffused over the surface of the globe, because they are suited to elevated tracts in tropical latitudes. There is, however, another law which relates to the original appearance, or creation, of plants, and which has produced different species flourishing under similar physical conditions, in different regions of the globe.

Distribution of Marine Life. Organic life, in its animal form, is much more developed, and more variously, in the sea, than in its vegetable form. Edward Forbes has defined five bathymetrical zones, or belts of depth, which he calls,—1, Littoral; 2, Circumlittoral; 3, Median; 4, Infra-median; 5, Abyssal. The life forms of these zones vary, of course, according to the nature of the sea-bottom; and are modified by those primitive or creative laws that have caused representative species in distant localities under like physical conditions,—species related by analogy. A shell or a sea-weed, whose relations to depth are understood, may afford important information or warning to the navigator. To the geologist the distribution of marine life according to the zones of depth, has given the clue to the determination of the depth of the seas in which certain formations have been deposited.

Palæontology. Had all the terrestrial animals that now exist diverged from one common centre within the limited period of a few thousand years, it might have been expected that the remoteness of their actual localities from such ideal centre would bear a certain ratio with their respective powers of locomotion. With regard to the class of birds, one might have expected to find that those which were deprived of the power of flight, and were adapted to subsist on the vegetation of a warm or temperate latitude, would still be met with more or less associated together, and least distant from the original

centre of dispersion, situated in such a latitude. This, however, is not only not the case with birds, but is not so with any other classes of animals. [A number of illustrative examples were here given.] We have the most pregnant proof of the importance of palæontology in rectifying and expanding ideas deduced from recent zoology of the geographical limits of particular forms of animals, by the results of its application to the proboscidian or elephantine family. But such retrospective views of life in remote periods, in many important instances, confirm the zoologist's deductions of the originally restricted range of particular forms of mammalian life. The sum of all the evidence from the fossil world in Australia proves its mammalian population to have been essentially the same in pleistocene, if not pliocene times, as now; only represented, as the Edentate mammals in South America were then represented, by more numerous genera, and much more gigantic species than now exist. But geology has revealed more important and unexpected facts relative to the marsupial type of quadrupeds. In the miocene and eocene tertiary deposits, marsupial fossils of the American genus Didelphys have been found, both in France and England; and they are associated with Tapirs like that of America. In a more ancient geological period, remains of marsupials have been found in the upper oolite of the Isle of Purbeck. In the lower oolite at Stonesfield, Oxfordshire, marsupial remains have been found having their nearest living representatives in the Australian genera Myrmecobius and Dasyurus. Thus it would seem, that the deeper we penetrate the earth, or, in other words, the further we recede in time, the more completely are we absolved from the present laws of geographical distribution. In comparing the mammalian fossils found in British pleistocene and pliocene beds, we have often to travel to Asia or Africa for their homologues. In the miocene and eocene strata some fossils occur which compel us to go to America for the nearest representatives. To match the mammalian remains from the English oolitic formations, we must bring species from the Antipodes. These are truly most suggestive facts. If the present laws of geographical distribution depend, in an important degree, upon the present configuration and position of continents and islands, what a total change in the geographical character of the earth's surface must have taken place since the "Stonesfield slate" was deposited in what now forms the county of Oxfordshire! These and the like considerations from the modifications of geographical distribution of particular forms or groups of animals, warn us how inadequate must be the phenomena connected with the present distribution of land and sea to guide to the determination of the primary ontological divisions of the earth's surface.

Already the directions, and to a certain extent the forms of the submerged tracts that once joined what now are islands to continents, and which once united now separate or nearly disjoined continents by broad tracts of continuity, begin to be laid down in geological maps, addressing to the eye such successive and gradually progressive alterations of the earth's surface. These phenomena shake our confidence in the conclusion, that the Apteryx of New Zealand and the Red-grouse of England were distinct creations in and for those islands respectively. Always, also, it may be well to bear in mind that by the word "creation" the zoologist means "a process he knows not what." Science has not yet ascertained the secondary causes that operated when "the earth brought forth grass, and herb yielding seed after his kind," and when "the waters brought forth abundantly the moving creature that hath life." And supposing both the fact and the whole process of the so-called 'spontaneous generation" of a fruit-bearing tree, or of a fish, were scientifically demonstrated, we should still retain as strongly the idea, which is the chief of the "mode" or "group of ideas" we call "creation," viz., that the process was ordained by and had originated from an all-wise and powerful First Cause of all things. When, therefore, the present peculiar relation of the Red-grouse (*Tetrao scoticus*) to Britain and Ireland—and I cite it as one of a large class of instances in Geographical Zoology—is enumerated by the zoologist as evidence of a distinct creation of the bird in and for such slands, he chiefly expresses that he knows not how the Red-grouse came to be there and there exclusively; signifying also by this mode of expressing such ignorance, his belief that both the bird and the islands owe their origin to a great first Creative Cause.

Probable Cause of the Extinction of Species. In proportion to its bulk is the difficulty of the contest which, as a living organised whole, the individual of a species has to maintain against the surrounding agencies that are ever tending to dissolve the vital bond and subjugate the living matter to the ordinary chemical and physical forces. Any changes, therefore, in such external agencies as a species may have been originally adapted to exist in, will militate against that existence in a degree proportionate, perhaps in a geometrical ratio, to the bulk of the species. If a dry season be gradually prolonged, the large mammal will suffer from the drought sooner than the small one; if such alteration of climate affect the quantity of vegetable food, the bulky herbivore will first feel the effects of stinted nourishment; if new enemies are introduced, the large and conspicuous quadruped or bird will fall a prey, while the smaller species conceal themselves and escape. Smaller animals are usually also more prolific than larger ones. "The actual presence, therefore, of small species of animals in countries where larger species of the same natural families formerly existed, is not the consequence of any gradual diminution of the size of such species, but is the result of circumstances which may be illustrated by the fable of the 'Oak and the Reed;' the smaller and feebler animals have bent and accommodated themselves to changes which have destroyed the larger species." No doubt the type-form of any species is that which is best adapted to the conditions under which such species at the time exists; and as long as those conditions remain unchanged, so long will the type remain; all varieties departing therefrom being in the same ratio less adapted to the environing conditions of existence. But, if those conditions change, then the variety of the species at an antecedent date and state of things will become the type-form of the species at a later date, and in an altered state of things. Observation of animals in a state of nature is required to show their degree of plasticity, or the extent to which varieties do arise; whereby grounds may be had for judging of the probability of the elastic ligaments and joint-structures of a feline foot, for example, being superinduced upon a more simple structure of the toe with the non-retractile claw, according to the principle of a succession of varieties in time. Observation of fossil remains is also still needed to make known the ante-types, in which varieties, analogous to the observed ones in existing species, might have occurred, so as to give rise ultimately to such extreme forms as the Giraffe, for example. The aboriginal laws of the geographical distribution of plants and animals have been modified from of old by geological and the concomitant climatal changes; but they have been much more disturbed by man since his introduction upon the globe. The serviceable plants and animals which he has carried with him in his migrations have flourished and multiplied in lands the most remote from the *habitats* of the aboriginal species. Man has, also, been the most potent and intelligible cause of the extirpation of species within historic times. He alone, with one of the beasts which he has domesticated—the dog—is cosmopolitan. The human species is represented by a few well-marked varieties; and there is a certain amount of correspondence between their localities and general zoological provinces. We cannot be surprised to find that the migratory instincts of the human species, with the peculiar endowment of adaptiveness to all climates, should have produced modifications in geographical distribution to which the lower forms of living nature have not been subject. Ethnology is a wide and fertile subject. But I may advert to the testimony of different witnesses—to the concurrence of distinct species of evidence—as to the much higher antiquity of the human race, than has been assigned to it in historical and genealogical records.

Sanitary Science. When authority becomes impressed with a conviction stimulating to action of the importance of Sanitary Science, it will insist on the possession, by the army medical officers, of the elements of that science, as well as of the principles of practice in the cases of disease and the treatment of wounds. But, in order that an army may benefit by the doctors' knowledge of preventive medicine, authority should direct preliminary examinations and reports of sites for encampment,—of buildings for barracks and hospitals,—of clothes for extreme climates, and the like; and should command that such reports be acted upon, where no urgent circumstances or inevitable movements precluded the adoption of the means for the prevention of decimating fevers and cholera. Bonaparte's military science was characterised by the rapid concentration of his forces upon a given point. A like success and superiority may attend the commander who keeps the greatest proportion of his men in good working trim. The healthier the man the longer and quicker will he march. And the care which foresees and provides for the efficient fighting order of a force is quite compatible with the most intrepid handling of

that force in the field of battle. As to the dense populations in civil life, the number of towns in England in which the sewage is rapidly, efficiently, and economically carried off by water-power and hydraulic apparatus, constitute so many experimental demonstrations of the success attending a proper unintermitting water-supply and coadjusted system of tubular drainage. It has been shewn by the Sanitary Commissioners, as a general result, that nearly one-half the prevalent diseases are due to one or other form of atmospheric impurity; impurity from decomposing fæcal or animal and vegetable matter, within and without human habitations, and beneath the sites of towns, and atmospheric impurity from over-crowding. For the prevention of the diseases arising from these causes, the sanitary physician must direct his requisitions, not to the apothecary, but to the professors of new arts, which are only partially created,—the art of the sanitary architect and the art of the sanitary engineer. The latter has already been officially shown how he may collect water from natural and artificial springs, convey it into houses, unintermittingly fresh and without stagnation, and by its means remove from houses, through self-cleansing drains and self-cleansing sewers constantly, and before noxious decomposition can commence, all the fæcal and waste animal and vegetable matter. In our time physicians have ably exerted themselves in aid of the sanitary engineer and administrator. It is to the landlord,—to the representative landlords and owners of habitations, in Parliament,—to whom exhortations are now required to be addressed, to raise their minds above "the sordid considerations" of the expenses of cure, that is, of the expenses of those sanitary works of combined drainage and water-supply, which it is their province to provide. It is right, however, to state, that advances in well-directed applications of sanitary science are advances in economy; that two houses and two towns may receive constant supplies of water at the expense formerly incurred for supplying one on the intermittent system, with its stagnancy and pollutions in house cisterns and large storage reservoirs. It remains for the legislature and local administrations to make prevalent that which is proved to be practicable for the public good, and to insure that good at the economical rate at which particular instances afford demonstrations that it is achievable.

Town Drainage: Application to Agriculture. Water is the cheapest and most efficient transporter of excreta; but it should be remembered that the application of the water-supply as a transporting power is to be limited to all that comes from the interior of the abodes; this alone can be practically and successfully applied to agriculture. Whatever flows from the outside of houses, together with the general rainfall of the town area, should go to the nearest river by channels wholly distinct from the hydraulic excretory system. Agriculture has made, and is making, great and encouraging progress; but much yet remains to be done. Were agriculture adequately advanced, the great problem of the London sewage would be speedily solved. Can it be supposed, if the rural districts about the metropolis were in a condition to avail themselves of a daily supply of pipe-water not more than equivalent to that which a heavy shower of rain throws down on 2,000 acres of land, but a supply charged with thirty tons of nitrogenous ammoniacal principles, that such supply would not be forthcoming, and made capable of being distributed when called for within a radius of one hundred miles? To send ships for foreign ammoniacal or phosphatic excreta to the coast of Peru, and to pollute by the waste of similar home products the noble river bisecting the metropolis, and washing the very walls of our Houses of Parliament, are flagrant signs of the desert and uncultivated state of a field where science and practice have still to co-operate for the public benefit.

Practical Utility of Scientific Discoveries. These are evidence unmistakable of the close affinity between the aims and tendencies of Science and those of true State policy. In proportion to the activity, productivity, and prosperity of a community is its power of responding to the calls of the Finance Minister. By a far-seeing one, the man of science will be regarded with a favourable eye, not less for the unlooked-for streams of wealth that have already flowed, but for those that may in future arise, out of the applications of the abstract truths to the discovery of which he devotes himself. This may, indeed, demand some measure of faith on the part of the practical statesman. For who that watched the philosophic Black experimenting on the abstract nature of caloric could have foreseen that his discovery of latent heat would be the stand point of Watt's invention of a practically operative steam-engine? How little could the observer of Oersted's subtle arrangements for converting electric into magnetic force have dreamt of the application of such discovery to the rapid interchange of ideas now daily practised between individuals in distant cities, countries, and continents! Some medical contemporaries of John Hunter, when they saw him, as they thought, wasting as much time in studying the growth of a deer's horn as they would have bestowed upon the symptoms of their best patient, compassionated, it is said, the singularity of his pursuits. But by the insight so gained into the rapid enlargement of arteries, Hunter learned a property of those vessels which emboldened him to experiment on a man with aneurism, and so to introduce a new operation which has rescued from a lingering and painful death thousands of his fellow creatures. Our great inductive physiologist, in his dissections and experiments on the lower animals, was "taking light what may be wrought upon the body of man." The production of chloroform is amongst the more subtle experimental results of modern chemistry. The blessed effects of its proper exhibition in the diminution of the sum of human agony are indescribable. But that divine-like application was not present to the mind of the scientific chemist who discovered the anæsthetic product, any more than was the gas-lit town to the mind of Priestley, or the condensing engine to that of Black.

[*To be continued.*]

Editor's Letter Box.

THE INTELLECTUAL STATUS OF CORNISHMEN.

Letter from J. Kempthorne, Esq.

Sir,—The following was the cause of my observations on August 14th.

"Read our Journal of April 14th, and there you will see a reverend divine in the *benighted* region of Cornwall taking upon himself the double qualification of soul teacher and body mender; and under the potency of globular physic, or homœopathic heresy, attracting crowds of ignoramuses, who come to his standard, with heads as empty as a drum." (British Medical Journal, June 5th, President's address, by Edward Daniell, Esq., delivered at the annual meeting of the South-Midland Branch, May 21st, 1858.)

I beg to apologise to Mr. Waters and the members of the Liverpool Branch for giving them credit for the above remarks.

I am, etc., J. Kempthorne.

Callington, September 27th, 1858.

LIFE ASSURANCE OFFICE FEES.

Letter from George Pound, Esq.

Sir,—Following the example of Mr. Harrinson in this week's Journal, I beg to mention the "Atlas" Assurance Society, as amongst those offices who do not recognise the claims of the private medical attendants of the parties about to effect assurances to a fee for their report.

I am, etc., George Pound.

Odiham, Hants, September 28th, 1858.

MEETING OF THE MEDICAL PROFESSION.

Letter from H. W. Lobb, Esq.

Sir,—A preliminary meeting of the medical profession, for the purpose of forming a committee to consider the clauses of the new Medical Act, and to take such steps as may be considered necessary to protect the interests of the *great body of general practitioners of the United Kingdom*, will be held at the Freemasons' Tavern, upon Tuesday the 5th of October, at 7 P.M. Gentlemen taking an interest in the subject are invited to attend.

I am desired by the promoters of this movement to request the insertion of this notice in your forthcoming Journal.

I am, etc., Harry Wm. Lobb, *Hon. Sec. pro tem.*

63, Gloucester Terrace, Hyde Park, Sept. 27th, 1858.

THE DRAINAGE OF THE METROPOLIS.

Letter from W. Weston, Esq.

Sir,—The great majority of the public will hail with much satisfaction the truthful and common sense view you have taken of the drainage of the metropolis in your leader of this week (September 18th). It will not fail to discriminate that the inhabitants of all other densely crowded cities and towns are in a like manner incriminated in the infliction we have so long suffered under, and the perpetuation of which very bad system of drainage is now about to be tried to our further peril, and at an almost fabulous cost. It would be well if it could be known or determined how greatly the majority of the people are in favour of the separate system of sewage and drainage. For more than twenty years past I have raised my voice against the most pernicious practice of emptying our sewage into the nearest running stream (how are these now changed!) instead of having it preserved in proper receptacles, and then conveyed away, at convenient opportunity, for the nourishment of the earth. If you and other persons will take the trouble to discuss this matter, I have seldom failed to convince listeners, and readers, that our plan of sewage is the only correct one, and that it is established, and in successful operation, in many cities, towns and populous communities at the present time, and for all time, particularly in the records of Holy Writ. Dire disease and pestilence generally follow the neglect of such precepts. It is not, surely, merely for "engineers" to decide this question. They cannot view it through the highly important medium of our experience as medical men. This teaches us to contemplate it in its physiological and pathological bearings. I have always found that the separate system was preferred by my tenants, being more consonant with health and a general freedom from bad smells. I have demonstrated that the errors of the tunnel plan of collecting large bodies of flowing sewage are great indeed; that the atmosphere is always seriously impregnated and deteriorated, and to an extent at times fatal to life (it is quite an impossibility to trap or plaster over these gratings); that the river and all its rivulets are in an equal or greater degree rendered unfit for its high and destined use; for the support, healthful relaxation, and business of man; that the sewage, when collected undiluted by the house and surface or rain water, is of immense pecuniary and material value daily, for irrigation and manure of the land; that the cost of construction in tunnels is enormous (calculated at £7,500,000) as well as great waste of material and manual labour, ending in failure of principle and purpose.

What has been done already has failed to answer, hence the contemplated change and extension, but which has no precedent on record to recommend it. With regard to the water supply, the companies have during the past few years been compelled at an enormous outlay to draw the necessary supply at a much higher source up the river, under the vain delusion that they had got a pure water, unmindful that several large towns on the banks of the Thames had previously cast their sewage into its flowing stream. It would occupy too much of your space to recapitulate all the arguments my experience has suggested to me as most natural and best for the purpose; but if you could favour your readers with a short digest on my work it will doubtless subserve the important interests we have in common; viz., the best sanitary arrangements for the rising multitudes of our metropolis and sister cities and townships. I am, etc.,

W. Weston.

Prospect House, Honley, September 20.

Medical News.

BIRTHS, MARRIAGES, DEATHS, AND APPOINTMENTS.

** In these lists, an asterisk is prefixed to the names of Members of the Association.*

BIRTHS.

Cowell. On September 24th, at 22, Queen Street, Mayfair, the wife of Thomas W. Cowell, Esq., of a daughter.

Eddowes. On September 22nd, at Stamford, the wife of Walter Eddowes, Esq., Surgeon, of a son.

Fotherby. On September 28th, at Long Sutton, the wife of Henry Isaac Fotherby, M.B., of 40, Trinity Square, London, of a son.

Lake. On September 20th, at Teignmouth, the wife of *Wm. C. Lake, Esq., Surgeon, of a daughter.

Norton. On September 23rd, at 4, Westbourne Grove West, the wife of Robert Norton, M.D., of a son.

Playfair. On September 28th, at 34, Cleveland Square, the wife of Lyon Playfair, Ph.D., F.R.S., Professor of Chemistry in the University of Edinburgh, of a daughter.

Ray. On September 26th, at 26, Gloucester Terrace, Hyde Park, the wife of Charles Ray, M.D., of a daughter.

Sparrow. On September 27th, at Southsea, the wife of Robert Pennington Sparrow, Esq., Surgeon, of a son.

Terry. On September 26th, at Mells, near Frome, Somerset, the wife of *George Terry, Esq., Surgeon, of a son.

Woolmer. On September 23rd, at 71, Warwick Square, Pimlico, the wife of J. B. Woolmer, Esq., Surgeon, of a daughter.

MARRIAGES.

Aldridge—Randall. Aldridge, J. H., M.D., of Southampton, to Sarah Jane, second daughter of E. M. Randall, Esq., of the same place, on September 23rd.

Lawrence—Tucker. Lawrence, W. F., Esq., Surgeon, of Highworth, Wiltshire, to Sarah, widow of the late John Tucker, Esq., of West Ham Abbey, at Highworth, on September 23rd.

Paterson—Clarke. *Paterson, George, M.D., of Tiverton, to Jane Mary, daughter of the late Rev. Robert Clarke, rector of Churchstanton, Devon, at Tiverton, on Sept. 23rd.

Sturges—Whiskard. Sturges, Montague James, M.D., of Mile End, to Lucy, only surviving daughter of the late John Mason Whiskard, Esq., Surgeon, at Wandsworth, on September 23rd.

DEATHS.

Colledge. On September 26th, at Cheltenham, Caroline Georgiana, eldest daughter of *Thomas R. Colledge, M.D., aged 17.

Elton. On September 10th, at Ramsey, Isle of Man, Delia Everina, aged 4 years; on the 11th, John Patrick, aged 18 months; and on the 20th, Blanche Harrington, aged 5 years; children of Dr. Elton, 32nd Regiment Native Infantry, Bengal.

Salmon. On August 25th, at the Royal Naval Hospital, Malta, aged 39, Elizabeth, wife of James Salmon, Esq., Deputy Inspector of Hospitals and Fleets.

Timm. On September 22nd, at Bawtry, Frances Jane, wife of Charles Timm, M.D.

Wood, John, Esq., Surgeon, at 6, Bird Street, Lambeth, aged 47, on September 26th.

PASS LISTS.

Apothecaries' Hall. Members admitted on Thursday, September 23rd, 1858:—

Bayley, Robert Luther, Eign Brook, Herefordshire
Jenkins, Joseph, Bassingbourn, Cambridgeshire
Langdon, Thomas Charles, Bampton, Devonshire
Rowland, Evan, Goginam, near Aberystwith

In addition, two gentlemen passed their first examinations.

HEALTH OF LONDON:—WEEK ENDING SEPTEMBER 25TH, 1858.

[From the Registrar-General's Report.]

The public health is now in that favourable condition which it usually exhibits in London after the summer heat. The deaths in London which had been above 1100 weekly in August, and above 1000 in the first three weeks of September, declined last week (ending Saturday, September 25th) to 955. In the ten years 1848-57, the average number of deaths in the weeks corresponding with last week was 1252; but when the deaths from cholera in two epidemics within the series are withdrawn from the calculation, it will be found that the rate of mortality that prevailed in the period now specified would produce about 1100 deaths in the present increased population; and it appears from the present return, that the deaths of last week were less than that number by 150.

On reference to the tables, the great and increasing mortality from scarlatina will be observed as an exception to their favourable character. The deaths from this disease, which were 85 in a week in the early part of August, have increased almost continuously, and last week they were 125. Another child has died from it at 19, Theobald Street, Newington, in addition to three mentioned in the last return; the four deaths

have occurred in one family within eight days. Two children died on the 24th instant from diphtheria, in a family in Islington; and two from scarlatina, on the 17th, in a family at 1, Thames Street, Greenwich, where the house is stated to be "unwholesome". Four deaths from scarlatina are recorded in the sub-district of St. John, St. George-in-the-East, and six in that of Greenwich West. Cholera was fatal to two men, aged severally 66 years, on the 20th; and to a woman, aged 26 years, on the 19th. Only one person, a woman, included in the present returns, had attained the age of 90 years.

Last week the births of 839 boys and 818 girls, in all 1657 children, were registered in London. In the ten corresponding weeks of the years 1848-57, the average number was 1531.

At the Royal Observatory, Greenwich, the mean height of the barometer in the week was 29·942 in. On four days the mean daily reading was above 30 in. The readings varied from 29·49 in. to 30·42 in. The mean temperature of the week was 58·6°, which is 3·2° above the average of the same week in 43 years. The highest point of the thermometer in the shade was attained on Wednesday, and was 72·2°; the lowest was 41·5°, and was observed on Saturday; the range of the week was therefore 30·7°, and the mean daily range was 16°. The difference between the mean dew-point temperature and air temperature was 6°. The mean degree of humidity of the air was 82. The mean temperature of the water of the Thames was 62·6°. On the first four days the wind blew generally from the north-east. On Thursday, when it was in the south, the pressure on the square foot rose to 9 lbs., and the amount of horizontal movement was 215 miles. The rain, nearly all of which fell on Sunday, the 19th, amounted to 0·20 in.

Fellow of the Royal Society and other Titles. The *Mining Journal* has the following in answer to a correspondent:—"A Fellow of the Royal Society of Edinburgh is perfectly justified in putting F.R.S. after his name, without specifying whether of London or Edinburgh. If of both, of course he would write F.R.S.L. and E. The Ph.D. is losing much of its former repute, or else some of the first men would not lately drop it, and use in its stead M.D., LL.D., or D.C.L." There are parties here and in other principal towns using the Ph.D., and styling themselves doctor, so as to give them what they consider a little importance in the eyes of the vulgar, who never take the trouble of inquiring how or where such a one was "capped". The German universities should be more careful in the indiscriminate bestowal of their honours, so as to prevent schoolmasters, retail druggists, third or fourth-rate organists, etc., from affixing to their names Doctor of Philosophy, a title only applicable to men holding the very first rank in science or literature. In the words of a savant, slightly altered, it is the duty of every man to protest most loudly against "the enormous amount of loose and most discreditable titles paraded before the world." (*Liverpool Mercury.*)

TO CORRESPONDENTS.

NOTICE.—Dr. Wynter will feel obliged if the Associates will address all Post Office Orders in payment of Subscriptions, to the Publisher, Mr. Thomas John Honeyman, 37, Great Queen Street, Lincoln's Inn Fields, London, W. C., "Bloomsbury Branch"; and he would also feel obliged by their sending all communications respecting the non-receipt of the Journal, to the same address; as both these matters are out of the province of the Editor.

M.R.C.S. (Altrincham.) A work on Dental Surgery by Dr. Chapin A. Harris, Professor of the Principles and Practice of Dental Surgery, Baltimore. It can probably be obtained through Trübner and Co., Paternoster Row.

Communications have been received from: — Mr. Solomon; Mr. H. W. Lobb; Sir H. Cooper; Mr. J. Dix; Mr. G. Terry; Mr. Holmes; Dr. Alison; Mr. J. Hutchinson; Dr. J. Watson; Mr. E. A. Brown; Mr. G. Pound; Mr. Kempthorne; and Mr. Solomon.

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Members of Convocation desirous of proposing Candidates, are requested to forward their Nominations to the Registrar, on or before Wednesday, Oct. 27th, in order that they may be included in the Circular and Voting-paper which will then be issued.

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Burlington House, W., September 28, 1858.

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The appointment of a Clerk of Convocation;

The Nomination of three persons for one of the vacant Fellowships.

Members of Convocation not receiving the report of the Committee are requested to apply for it to Mr. Moore, at Burlington House.

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